MAY, 1910. Vol. LIV. No. 387.

JOURNAL

OF THE

Royal United Service Institution.

Registered for Transmission to Canada by Canadian Magazine Post.

PUBLISHED UNDER THE AUTHORITY OF THE COUNCIL.

Editor - Captain H. Garbett, R.N. (Retired).

All communications (except those for perusal by the Editor only) to be addressed to the Secretary, Royal United Service Institution.

LONDON:

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Telegraphic Address: "RUSSATUS, LONDON."

Printed by J. J. KELIHER & CO., LIMITED, 33, King William Street, E.C., And Craven House, Kingsway, W.C.

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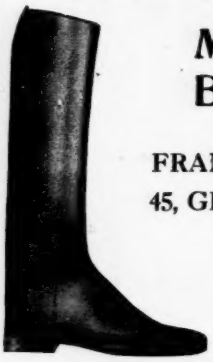

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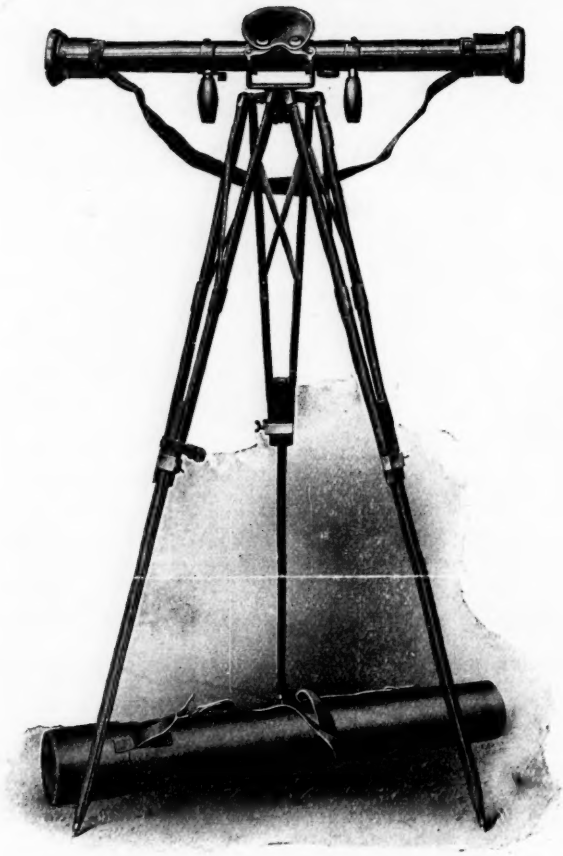

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THE JOURNAL

OF THE

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VOL. LIV. MAY, 1910. No. 387.

[Authors alone are responsible for the contents of their respective Papers.]

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Lieutenant A. W. Malet, Indian Army.
Lieutenant F. Giffard, R.N.
Major T. M. Drew, Leicestershire Regiment.

II. THE CHESNEY GOLD MEDAL.

The Council has awarded the Chesney Gold Medal to Sir John Laughton in consideration of his valuable contributions to naval literature.

III. ROYAL PROCESSIONS.

The Council has had under consideration the question of the admission of guests to view from the Museum windows Royal Processions, such as the opening of Parliament, and other ceremonies; and has decided that owing to the limited window space available and to the very large number of applicants on such occasions, in future only members will be allowed admission to the building.

IV. LIBRARY CATALOGUE AND INDEX.

The Index to the Library Catalogue has just been published, and may be purchased at the price of 2s. The price of the Catalogue itself is 2s. 6d. The Catalogue, together with the Index, will be sent post free for 4s. 6d.

V. THE LATE MAJOR-GENERAL SIR GEORGE MARSHALL, K.C.B.

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VI. THE WAR GAME.

The Home District Military Society, having been recently dissolved, have presented to the Institution their collection of maps and materials for playing the War Game, and these have now been sorted and stored. The Council has arranged that sets of maps and pieces can be lent to any Regular, Special Reserve, or Territorial unit or recognised society of the same, at a fee of 10s. per occasion, the unit or society paying the carriage both ways and making good any loss or damage incurred. Umpires, Assistant Umpires, Schemes and all other arrangements to be

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VII. ADDITIONS TO THE MUSEUM.

(6079) Silver Gorget of the time of George I., with the Royal Arms heavily embossed.

(6081) Sledge used in the Arctic Expedition of 1875-76. This expedition, consisting of H.M. ships *Alert* and *Discovery*, sailed from Portsmouth on 29th May, 1875, arriving off Cape York, in the northern part of Greenland, on 25th July. In the middle of September the ships were frozen in for the winter somewhat to the south of Cape Sheridan, in Grinnell Land, the *Alert* occupying the most northerly position in latitude 82° 27 N. The sledge was one of those used by the northern exploration party under the command of Commander Markham and Lieutenant Parr, which, leaving the ship on the 3rd April, succeeded after great hardships in reaching latitude 83° 20′ 26″ N. on the 10th May. Two days later, eight of the party of fifteen men being down with scurvy, Markham had to turn south again, the ship being reached with great difficulty on the 13th June, by which time only three of the men remained capable of drawing the sledge, one having died and the other eleven having to be carried in turn. The party would probably have perished but that Lieutenant Parr started by himself to procure assistance from the ship, accomplishing his solitary walk of thirty miles over floes covered with deep snow and girt by heavy hummocks in twenty-four hours, when help was immediately despatched. The sun was absent for 142 days, and the greatest cold experienced was 72° below zero. The expedition reached Portsmouth on its return on the 2nd November, 1876.

Given by Lieutenant M. Teeling, R.N. (retired).

(6082) Terra Cotta Figure of Buddha from a Buddhistic Temple, which had been concealed by earth and stones certainly prior to the Mahomedan invasion of India, A.D. 1001, and probably during the 6th century after Christ, when the Buddhists were suppressed by the Brahmins. The figure was unearthed in December, 1878, at the base of the fortress of Ali Musjid in the Khyber Pass, when a sunga, or stone breastwork, was being strengthened on the summit of a dome-shaped mound.

Given by Lieut.-Colonel W. H. M. Jackson (late 81st Regt.).

(6083) A Painting in Oils by Nibbs, representing H.M.S. *Fury*, 6 guns, Captain Edward Tatham, after having been ordered by Admiral Dundas to reconnoitre Sebastopol early in the Russian War (1854), being chased by Russian warships, mounting in all some 120 guns. The *Fury* on the occasion succeeded in making prisoners the crew of a Russian schooner.—*Given by E. T. Twiss, Esq.*

(6084) The First Shot directed against the British Fleet at Sebastopol in 1854, having been fired at H.M.S. *Fury*.
Given by E. T. Twiss, Esq.

(6085) Flint-lock Musket, known as a Trade Gun, with red stock. It is the type which was used by the negroes during the various wars on the West Coast of Africa, the charge generally consisting of slugs or broken pieces of iron-stone. There is still a large annual export of gun flints from England.

HOW AIRSHIPS ARE LIKELY TO AFFECT WAR.

By Major B. BADEN-POWELL, late Scots Guards.

On Wednesday, 8th December, 1909.

Field-Marshal Rt. Hon. EARL ROBERTS, V.C., K.G., K.P., etc., in the Chair.

The CHAIRMAN :—As, to my very great regret, I am unable to stay here for the discussion, I will, with your permission, say a few words on the subject on which Major Baden-Powell is about to lecture. It is, to my mind, a most interesting subject, more interesting than any other subject at the present time except, perhaps, the coming General Election. Of one thing I think we may be sure, and that is, that aerial machines have come to stay with us. What kind of machine will eventually prove the most useful and the most practical to us in war, nobody can at present venture to speak with any certainty. Some favour aeroplanes, some dirigible balloons; both have made their mark already, although both are still in their infancy. Before any practical decision can be arrived at, I have no doubt that many improvements will be brought about both in aeroplanes and in dirigible balloons. Indeed, day by day improvements are being made. We read of the aeroplane getting higher and higher in the heavens and of the dirigible balloon journeying longer and longer distances. It is merely a matter of trial and of improving faults as they come to light. But that something will be evoked out of all these trials, something which will perhaps astonish those who come after us as much as these present aeroplanes and dirigible balloons have astonished us, I have no doubt. We have been interested in reading about the efforts of the Wright brothers: what they have done in America to start this movement; and also what Zeppelin's dirigible balloons have done in Germany. I think we were all startled—I am not sure whether we in England were not suddenly wakened up—when M. Bleriot unexpectedly arrived at Dover a few months ago. I believe very few people thought such a feat could be performed. However, it has been done, and we may be perfectly certain that what has been done now will be thought nothing of a few years hence. Some of you may perhaps have been to Darlington. In the Darlington Railway Station there is an old engine—I think the first that was ever built. I was not quite sure whether this was the case, so I referred to the stationmaster, from whom I received a telegram this morning, in which he says: "Engine No. 1 here first locomotive to run on public railway, Stockton to Darlington, September 27th, 1825." That old engine is a curiosity; it is as different from the present locomotive as it is possible to conceive; and there is no reason why some people seventy-five or eighty years hence may not look upon the aeroplanes now in existence equally as curiosities. Perhaps some of them may be stored in our Museum here. At the time I have referred to, viz., 1825, it was evidently never anticipated that railway trains would go at any great speed. This was made clear to me a few years ago, when I had the honour of being presented with an address by the people of Darlington. On the address was a picture of a railway train—their first railway train—passing over the high viaduct at Darlington, drawn by the old engine I

have told you of, and a few yards in front of the train is depicted a man on a horse with a red flag for the purpose of keeping the road clear. Now, we know perfectly well that a man on a horse cannot go very fast on a railway track. We may conclude, therefore, the intention was that the train would not travel more than 10 miles or so an hour. Now we know that instead of going at that slow rate, we can travel sixty or seventy miles an hour. Why, therefore, we should have any doubt as to what aerial machines may do eventually is to me surprising. What we have now to do is to set to work ourselves in earnest. We have not done much in England in regard to the matter of aerial machines hitherto. We have been rather waiting to benefit by the experience of other people; but we cannot afford to be behind-hand. Aerial machines may be of the greatest value in the next war. When that war may come we do not know, but we certainly cannot afford to keep ourselves in the background any longer. We must make our own machines, have our own trials, and above all, have a staff of men trained, ready to adapt themselves to aerial machines as they become introduced. I will not take up your time with more words. What I have said is merely to show you how very interested I am in the subject myself. I believe that aerial machines will be a great feature in future wars, and I am anxious that the country should wake up to the necessity for knowing all about them. We are so strangely apathetic. It is rather a consolation to find that other countries can be apathetic also, for although America is a long way ahead of us in aeroplanes and dirigible balloons, she is evidently no better prepared for war than we are, if I may judge by a book I have been reading the last two or three days—a book which in many ways is equally applicable to us. It is called: "The Valour of Ignorance." The object of the book is to show how satisfied people are with themselves, how brave and how confident so long as they are ignorant. It is a book I recommend everybody to read. My copy was sent to me by the author, and as soon as I received it I went to the publishers, Messrs. Harper Bros., to try and get some more copies; but the bookseller said they had never thought it would be a book that would be much read in this country, and so they had only had six copies sent over. I took them all at once. I think it is so valuable a book that I suggested they should cable to New York, and other copies are coming in to-morrow. It fits England exactly. It is the "valour of ignorance" which pervades the whole country. Our people are very brave and very confident because they know nothing about what is going on. What we have to do is to try and wake up the country; make them understand what is going on in the world. They would not be quite so valorous if they only realised what other nations are doing and what will assuredly be in store for them unless they wake up. They may perhaps be as valorous, but they will not be so confident of themselves. This meeting has brought to my mind our apathy with regard to balloons and aeroplanes, and my conviction is that it is because we do not believe in anything happening, that we are content to remain in ignorance. This book, "The Valour of Ignorance," explains our position, as it apparently explains, to the discomfiture of General Homer Lee, the position of America. It is a wonderful book. I will now ask Major Baden-Powell to read his paper.

LECTURE.

THIS is a most difficult subject to deal with. If we speculate and wander into the realms of romance, it is easy to

conjure up vast possibilities; but in stern reality we often find such ideas fall short of practicability. Much has recently been said about the great importance of aerial machines in war. But a great deal of this has been proclaimed by those who have had no sort of experience in aeronautics, nor have made any study of the science of war. In France and in Germany large airships have been built and tried with some success. Immediately there goes up a cry from the British Public: "We must have airships, too!" If, however, we ask anyone "Why must we have airships? What use are we going to make of them?" we seldom get a satisfactory answer. Either it is that he has not thought about it, or he draws imaginary pictures of the state of affairs which may (or may not) come about in the distant future.

So it seems very necessary for us to carefully consider this matter. I am not suggesting that our responsible authorities have not given the matter their very serious attention—but it is desirable, I think, to have an open discussion, to hear the views of all those experts who are kind enough to give them, so as to let the public know something of the real pros and cons regarding the probable potentiality of air craft.

Alarmists have their uses, however. We hear rumours of one European power having secretly under construction 50 airships, and of another having 14 nearly ready. We also hear of experiments having been carried out which prove the practicability of discharging bombs from airships capable of creating the most awful havoc, and so on. Though most of these may be set aside as exaggerations, still, ought we not to *be prepared* in case such stories should prove to be more or less true? It would be better for us to spend a little money in making preparation to ward off a bogie than for us to be caught napping, in the event of any sudden outbreak of war.

The matter must be looked at from two points of view. One is the immediate future—to look at what means we (and other nations) actually possess, or are likely to possess, within a few months, and to consider how these could be used suppose a war to break out immediately. The other is to look further ahead and consider what preparations we ought to be making in view of possibilities that may arise during the next few years.

The subject of aerial navigation has for long been divided under two headings, and whatever the future may bring, this holds good of to-day. These are known as "lighter than air" and "heavier than air," or more correctly as gas-borne vessels and mechanical lifting appliances.

Dirigible Balloons.

It has been usual of late to classify these vessels into three different types, called respectively "rigid," "semi-rigid," and "non-rigid." Such classification is, however, misleading. All dirigibles are, and must be, *rigid*. It is merely a detail of construction as to how they are to be kept in shape. What is

known as the rigid type is that having an internal framework; the semi-rigid has a large flat frame fixed to the underneath part; while the non-rigid has a long girder slung below it. In the two latter cases the gasbag is blown out tight by means of a "ballonet," or airbag inside connected to a fan blower in the car.

Given a certain shape, the speed and manœuvring power are quite independent of how that shape is maintained. Various forms of folding framework have been suggested which would enable a "rigid" airship to be deflated and folded up.

The frame vessel must necessarily be comparatively heavy. Therefore, it must have great capacity to lift the weight, and it is impossible to make a small airship on this principle. As the size is increased the cubic contents will increase at a greater rate than the surface area. Hence, when we come to consider very large vessels, this weight of framework becomes of comparatively less importance.

There are certain other points in which these various modes of construction affect their military utility. A frameless vessel possesses the advantage of being portable. But this type if struck by even a small projectile will lose gas, and if the pump supplying air to the ballonet is not sufficiently powerful to counteract the loss, the nose of the vessel will be driven in, the speed lessened, and the manœuvring power destroyed.

As regards the actual aerial strength of the various nations at the present moment, the following table[1] is probably fairly correct. Considerable uncertainty, however, exists as to the exact number of machines under construction.

Capabilities of Airships.

Whatever improvements may develop in future, we may at present count on vessels capable of performing as follows:

Speed.—The *exact* speed through the air of any airship is somewhat difficult to reckon, since the slightest puff of wind makes a considerable difference in aiding or thwarting the progress, and this must always be a factor of uncertainty. All practical vessels, however, are capable of proceeding at between 25 and 35 miles per hour through the air.

Height.—The altitude to which a dirigible can ascend is of considerable importance in military machines. In March last the Zeppelin was reported to have risen to a height of 5,600 feet, which was accomplished "entirely with the use of the elevators." Other types have seldom exceeded a height of 4,000 feet.

Distance Travelled.—While most of the military dirigibles have made voyages of a couple of hundred miles, the Zeppelin has covered no less than 360 miles in the air.

Difficulties of Dirigibles.

The typical airship is a most difficult appliance to work in practice. It has to be housed when on the ground against

[1] *Vide* page 570.

storms, and this involves the erection of huge sheds. It would however, often be sufficient to get the machine down into a hollow in the ground such as a quarry, and if airships are to be much used it would be desirable to look out for all natural harbours of this kind, and even improve them by digging and by planting trees around their edges.

A large number of men are required to manœuvre the airship on the ground, to get it in and out of its shed, and so on, and these should be specially trained.

One of the greatest dangers arises from the vast store of inflammable gas contained in the balloon. While the extreme flimsiness of the cover, necessarily very light, renders it very liable to damage.

Meteorological conditions have a great effect on gas-vessels. Heat causes the gas to expand, while cold contracts it. A difference of 40° F., such as sometimes occurs between mid-day and midnight, would make a difference of one-twelfth the capacity or lifting power. Damp renders the balloon very heavy; snow falling on it may weigh it down and entirely prevent its ascent.

AEROPLANES.

Though at present only a few machines have been experimented with by various Governments, still, it seems highly probable that all nations will soon adopt some form, and the exact type of the immediate future will probably be one very similar to those now so much used for exhibition purposes. Though these differ a good deal in detail, yet they are all very much the same as regards their potentialities. The greatest *speed* may be taken as about 40 or 50 miles an hour; and very probably more in the near future. The *height* to which an aeroplane can ascend is still a matter of some doubt. Several different kinds have risen to well over 1,000 feet, and one (Paulhan's) has attained nearly 2,000.[1] It has been argued that the height will be limited owing to the rarity of the air affecting its capability for support. The best argument against this is the fact that condors and other large birds have been observed soaring above the highest mountains—a height far above that ever likely to be attained by dirigible balloons.

As regards the *distance* which an aeroplane is capable of traversing, the record to date is Farman's flight of 144 miles in 4 hours 17 minutes.

While one man seems quite able to control a machine for several hours on end, some machines have actually carried 3 men.

As compared to a dirigible, the aeroplane, as we know it, is easy enough to manage on the ground. Three or four men can hold it down in any ordinary wind, and a comparatively

[1] Since the lecture was delivered, M. Paulhan has ascended to 4,146 feet in an aeroplane.

very small shed is sufficient to house it. It is not liable to ignition or explosion to any extent, nor is it seriously affected by atmospheric changes.

Difficulties and Objections to Aeroplanes.

I have heard objections raised that it would be impossible to make observations from a machine travelling at over 60 miles per hour. This is, of course, absurd. It is entirely a matter of the distance of the object to be observed. If we travel in an express train it may be difficult to see objects on the permanent way beside the train, but we can watch distant views for minutes on end.

It has also been objected that an aeroplane cannot remain stationary over one spot. It is questionable whether there would be any advantage in doing so, but possibly for dropping explosives or taking a careful photograph it might be desirable. If, now, a strong wind be blowing (and the wind up at a great height generally blows at a far higher rate than that near the surface) it may be possible to travel straight against it, and progress at a rate exactly equal to that of the wind, that is the machine would remain stationary as far as the earth is concerned. This is the method adopted by hawks to hover over their prey, and they, we know, can remain absolutely stationary. Then again, when at a good height the propellers may be stopped and the machine allowed to fall for a certain distance, vertically. Even by travelling around one can remain nearly over one point, sufficient at all events for observation.

Dirigibles and Aeroplanes Compared.

The advantages of a dirigible as compared to an aeroplane for the purposes of war may be summarised thus:—1. It can, especially if constructed for the purpose, rise to heights far greater than those hitherto attained by aeroplanes. Against this it may be asserted that there is a *practical* limit to the height. At 5,000 feet the air is only about five-sixths of the density it is at sea level; so that a balloon which requires 100,000 cubic feet of gas to lift it off the ground would need 120,000 to keep it afloat at 5,000 feet up. This means that the ballonet should be one-sixth of the total capacity of the balloon—and this is probably getting near the limit of practicability. As aeroplanes have actually attained heights of nearly 2,000 feet it seems quite probable that they may soon be able to rise as high as the airship. 2. That they can rise more quickly, by discharging ballast. Though in the emergency of a duel between the two this may give a temporary advantage it would not be of much avail if the aeroplane be able to ultimately attain the same height and progress at a greater speed. 3. As hitherto made, airships can carry a greater weight of passengers or ammunition, etc.; but, considered in the light of expense, half-a-dozen aeroplanes could be made to carry as much, and far larger

aeroplanes may probably be made. 4. If the engine stops it is not compulsory to descend. This may sometimes be of advantage, as repairs may be effected in mid-air, and a suitable wind may carry the vessel back to its own country. 5. Can remain in the air for a long time, in calm or in favourable wind, without running the engines. This, however, would very seldom be of importance. 6. Can remain stationary over one spot, for observation or dropping missiles. This could only be in calms and very light winds, as it would be most difficult to remain steady in a puffy wind.

Now as to the advantages possessed by an aeroplane over the balloon:— 1. Much smaller and easier to manage on the ground. (Usually, however, in war time there is no lack of men to assist). 2. It is far cheaper, more quickly made, and easily repaired in the field. (But *cheapness* in war material should never be considered; efficiency is the only criterion). 3. The aeroplane is comparatively invulnerable; its wings may be riddled with bullets and even shells without serious effect. 4. It is not affected, at all events to anything like the same extent, by atmospheric changes. The upper surface of a dirigible extends for something like ten times as much as that of an aeroplane of equal lift. If this be wetted, it may be doubled in weight. 5. It can travel faster, and the speed seems likely to be very greatly increased in future. 6. Being so much smaller it is not so easily seen, and presents a smaller target.

Difficulties of Aerial Navigation.

One of the great difficulties in connection with aerial navigation is the danger of losing the way in fog or cloud. If a vessel loses sight of the land for any time it is very liable to go astray. If it be quite calm the course may be pursued and an idea of the position obtained by dead reckoning, but there will nearly always be *some* wind, and considering the great variability both in force and in direction at various heights, it becomes almost impossible to take them into account. It is a frequent experience in ballooning to find, on rising above a cloud bank, that the direction is completely changed. Fog should affect dirigibles more than aeroplanes, since, in practice, the latter are able to skim along within a few feet of the ground, and therefore keep "in touch," while the dirigible, for various reasons, can seldom make any certainty of manœuvring at less than 200 or 300 feet up. On the other hand, it would be somewhat dangerous for the aeroplane to be travelling at full speed in a fog so close to the ground, whereas the airship may slow down.

Darkness, too, does not add to the ease of finding one's way, especially in a strange country. The lights of towns are the principal, if not the only, guides, and they may be purposely extinguished in war time. Even if the general locality be ascertainable, accurate and useful information would be difficult to obtain, and attack on any special object would probably be futile.

One of the great difficulties that a dirigible, and to a less extent an aeroplane, has to deal with, is the velocity of the wind. From statistics we find that in England the average velocities are about as follows:—

At ground level	...	13	miles per hour
,, 300 feet up	...	24	,, ,,
,, 1500 feet up	...	28	,, ,,
,, 3000 feet up	...	30	,, ,,
,, 5000 feet up	...	36	,, ,,

It is thus evident that a dirigible capable of travelling 35 miles an hour through the air—about the best now in existence—could not at 5,000 feet up make any progress against the wind on an average day. This seems very significant, and another interesting point is that in Germany the winds are not so strong, especially at a height; hence, perhaps, the comparative success of the German airships. At Lindenburg the following figures were obtained:—

Ground level	...	11	miles an hour
1,500 feet	...	20	,, ,,
3,000 feet	...	21	,, ,,
4,500 feet	...	21	,, ,,

So that here a Zeppelin could, on an average day, travel 14 miles an hour dead against the wind. It is certain that the average wind at sea is greater than on land, but I have not come across any statistics to show whether the same increase with elevation occurs.

There is one point that must be always borne in mind, though an airship may be able to *stem* a wind, and go one or two miles an hour faster, it is not of much practical use unless it can go say 10 or 15 miles an hour against the wind.

Uses to Which Aerial Machines May be Applied.

It may be useful to suggest all the possibilities one can think of when these machines might prove of use. Some of them may sound rather visionary at present, but they are, nevertheless, worth bearing in mind, and it would be interesting to hear what others have to suggest on these points.

I.—*Reconnaissance.*

Speaking generally, it may be said that the only use of aerial machines that has actually been tested and proved of use (in manœuvres) is for reconnaissance. Whether they may prove useful for other purposes is a matter of conjecture. Yet, after all, this reconnaissance, as soldiers well know, is usually of far greater importance than such a matter as discharging a few explosives. It is more important for a general to receive detailed information about all that is going on in the enemy's lines than for him to be able to destroy a few hundred men or devastate a store.

When scouting by aerial machine is compared to that system hitherto in vogue—the cavalry scout—it will readily be realised how great is the superiority of the former. To receive reports from all along a line that the scouts have been fired upon gives but little real information. There is the curtain—what is behind it? That curtain can seldom be penetrated. With any form of apparatus capable of travelling in the upper regions for even a few miles, complete, reliable and full information is obtainable of the enemy's position, movements, armament and even numbers.

As has been pointed out by Colonel Capper, aerial reconnaissance is of two kinds—tactical and strategical. For the former it would seldom be necessary to travel more than 10 or 15 miles, but as it would be in the presence of the enemy it might be necessary to keep very high to avoid fire. With the latter, journeys of 40 or 50 miles would be necessary. It might seem, then, as if very large vessels, capable of travelling hundreds of miles, were unnecessary. These, however, may have their special work apart from reconnaissance, and, moreover, they may be able to start from and return to their permanent base, which may be hundreds of miles from the actual field of operations, whereas smaller vessels would have to have a mass of stores carried into the field. But it does not seem necessary, as has been suggested, for a large vessel to go far over the enemy's country for reconnoitring purposes. For instance, if France were at war with Germany, no great benefit would be derived by sending an airship to hover over Berlin.

It is probable that the policy of the French Government has been to provide for *tactical* reconnaissance by supplying each of its frontier fortresses with an airship capable of manœuvring all about the frontier without necessitating a voyage of more than 20 or 30 miles.

For *surveying country* a great deal of time and work may be saved by utilising aircraft. A series of photographs taken from above soon provides material for the compilation of an accurate map.

II.—*Transport of Troops.*

Though it has been suggested that large bodies of troops could be transported over long distances by dirigible airships, the idea seems hardly feasible. Even if in future much larger vessels are constructed than are dreamt of to-day, it seems unlikely that one would ever carry more than say 100 armed men, so that an enormous fleet would be required to take any considerable force, and the matter is altogether beyond the scope of present-day practice.

As regards the aeroplane, it is different. If such machines continue to develop as they have done, it is quite probable that they will soon be used in hundreds, if not thousands. In all probability we shall soon have machines capable of carrying three or four men in addition to the driver. Then the aeroplane

may be looked upon much in the same light as the motor car; but, going straight across country, independent of roads, regardless of all obstacles, and travelling at a high rate of speed, it would be infinitely more efficient. Such "mounted infantry" would be transported to any tactical position and deposited there within a few minutes, and the machines sent back for reinforcements. Eventually this might even become a means of invading a country.

III.—*Discharge of Explosives.*

As regards the damage to be done to troops, stores, buildings, etc., there seems to be a great divergence of opinion. Certain it is that towns can be bombarded with hundreds of large shells without suffering very materially. Explosives are not very harmful unless enclosed in a strong and heavy shell, at least that seems to be the more generally held opinion of experts. Troops are not likely to suffer very greatly unless in compact formations, and they can rapidly be deployed on the appearance of an airship. It is possible that much might be done by an airship hovering over a fortified place during bombardment, especially by directing artillery fire. Much harm might be caused by travelling over an enemy's country and dropping bombs or incendiary shells into powder magazines, stores and suchlike, or possibly causing some destruction to bridges and railways. Such trips can only be done with the full risk of losing the airship, so would usually only be carried out for very special objects.

Though it may not be easy to make accurate shooting by simply dropping a bomb on to a target beneath, yet, doubtless, instruments and appliances will be devised for effecting this.

IV.—*Raids.*

Under this heading I include all excursions into an enemy's territory for some special purpose. Numerous instances could be quoted as examples. A railway may be destroyed—not by dropping bombs on to it, which would have a doubtful effect—but by a party being landed near the spot to carry out the demolition. So powder magazines, gun factories, and other places of very great importance in the conduct of war, even though they may be at a great distance from the frontier, may suddenly be attacked, perhaps during the night, by a few men from an airship, and practically destroyed. Even posts on the line of communication, convoys of stores, telegraph offices, and so on, could be raided at any time.

V.—*Communications and Dispatch Carrying.*

For communicating with a besieged place any form of airship is, of course, ideal. Though it has been urged that it may not be possible to carry any large amount of provisions or ammunition, yet that is a matter of circumstance. If we

have a dozen or fifty aerial machines continually going to and fro unmolested, a very considerable amount of such stores could be taken into the place. This work can be carried on during the night, as powerful and unmistakable lights could be displayed in the town or other places to guide the airships.

For communicating with detached posts they would often prove useful. Despatches could be carried more quickly through the air than by any other means.

VI.—*In Savage Warfare*

much could be done. The moral effect on an ignorant enemy would be great, and a few bombs would cause serious panics. In a country where few roads exist, so rapid a means of communication would be most important. With no fear of artillery fire, or of the opposition of similar appliances, an airship would be at its best.

VII.—*As Cavalry.*

It may sound curious to speak of an aeroplane being used as a substitute for a cavalry horse, yet it seems possible that a small, compact form (like Santos-Dumont's "Demoiselle") might almost be used in such a capacity. Such a machine could probably be built for £100, and the manipulation, to a thoroughly trained man, need not occupy much more of his attention than would that of the horse. Able to skim over the country, surmounting hedges and ditches, walls, and even rivers, travelling at an average speed of perhaps 5 or 6 times that of the horse, the advantages for reconnoitring would certainly be very great. The machine would probably be less vulnerable than the horse, and would not offer a very much bigger target. Though the fuel supply might be more difficult than the forage, yet such machines could easily be sent off fifty miles or more to get their supply—and be back and ready for duty within a few hours.

VIII.—*As a Look-out.*

As a coign of vantage for the commander-in-chief during an action, a good airship would be unsurpassed. It would be presumed that constant communication could be kept up by wireless telegraphy or otherwise, and it would probably only be used to make short flights from one spot to another, and to take advantage of such a view of the whole battlefield as could not be obtained by any other means. But here again all depends upon the ability of the hostile artillery or air fleet.

IX.—*Naval Warfare.*

The advantages of an airship as compared to a marine ship are—(1) Probably greater speed, especially with the wind; (2) enables a wide view to be obtained; (3) ability to rise to a great height to avoid projectiles; (4) ability to get vertically above an

enemy; (5) enables observer to see to a depth below water. For reconnaissance then, it may prove of great value for the first two reasons. As to an airship actually attacking a battleship, if the latter be provided with a number of special high-angle guns it would seem impracticable, seeing that the aerial vessel is not likely to be able to do much harm unless it can get vertically overhead, and in attempting to get there it is very liable to be shot down. Here again, by taking advantage of clouds or in darkness, it may be different, but the accurate discharge of the projectiles would also become much more difficult. Marine vessels unprovided with suitable guns, such as transports, may be more at the mercy of a dirigible.

Reconnoitring at sea is very different to what it is on land. Usually it means merely noting the presence of vessels and their number, etc. Now a fleet may be clearly seen at, say 30 miles off, whereas at this distance practically no useful information could be obtained of land forces. Therefore an airship floating high above its fleet would be able to give most timely information about the enemy.

Reference has already been made to the difficulty of navigating an airship in fog. Much the same difficulty holds when over the ocean out of sight of land. It would certainly then be difficult to ascertain one's position; and if the waves gave one some kind of indication of the direction of the wind, it would still be most difficult to calculate one's course, since the direction of the wind on the water level may be different to that higher up.

Fighting in the Air.

Dirigible v. Dirigible.

The efficiency of a dirigible for fighting against a similar kind of machine is a most important consideration. If one nation possessed a type of machine which, *in this respect alone*, was superior to that of the enemy, it might soon oust the hostile airship and leave that nation supreme in the air—a most enviable position. Such power may be derived from:—

1. *Invulnerability*, which may be achieved to some extent by division of the balloon into compartments, and possible armour protection to the engine, and perhaps to the crew. Uninflammable gas, such as ammonia or steam, has been suggested, but this would necessitate a balloon of double the size. A frame prevents the bag caving in through loss of gas by a small puncture.

2. *Ability to rise high.* With machines as now constructed, if one vessel is able to get directly above another it has it at its mercy—a mere lighted match or a burning fuse or grenade dropped upon it would cause its instant destruction. A few holes made by any heavy articles thrown over, or by bullets even revolver bullets, would cripple its action. The upper machine could even descend right on to the lower one and "ram" it.

It is said that in the latest type of Zeppelin means are provided whereby a man can ascend to the top of the vessel, whence, presumably, he could fire up at an opponent overhead, or could direct the vessel so as to avoid as far as possible being directly underneath the enemy. But even this only mitigates to a very small extent the danger of such a position. A dirigible in the air seeing a hostile one on the ground should be able to destroy it.

3. *Effective Armament.* A vessel provided with some form of light gun, or other good means of offence, could soon put out of action one not so provided.

4. *Speed* may also have something to say, but it would only be desirable in order to run away in safety were the opposing vessel otherwise superior, or to chase a slower going one and destroy it.

Aeroplane v. Dirigible.

Such would seem likely to be a very one-sided sort of fight. It has been compared to that of a hawk and a heron. The advantages to be obtained by the dirigible in being able to rise to a height hitherto not attained by an aeroplane, and being able to ascend more quickly in an emergency, have already been discussed. It may carry a better armament; on the other hand it has the great disadvantages of offering a large target, and of being very vulnerable, the skin being so easy to penetrate. The aeroplane with its greater speed, better manœuvring power, and less liability to damage, has an immense advantage. Altogether it seems highly probable that very soon aeroplanes will be constructed which will be able on every point to hold the advantage over the balloon, and being so much less costly and easier to make, can be employed in larger numbers, and so would be likely to render the employment of dirigibles quite out of the question.

Aeroplane v. Aeroplane.

We are now beginning to get into a subject a little beyond our capability of perception. If it be granted that both machines must be travelling at a very rapid pace, and that they are not very vulnerable to bullets, it looks at first as though they were not able to do one another much harm. To collide would probably prove fatal to both. If one got just above the other and could travel at exactly the same rate, some damage could be caused by dropping grenades, etc., but the damage is not likely to be of such consequence as is the case with a balloon. It is possible that grappling irons suspended below the aeroplane could be used to upset the lower one, or a trailing rope carried to foul its propellers.

Evidently the manœuvring of two aeroplanes fighting in mid-air would form a most interesting spectacle to those below. Ease of manœuvring and speed will evidently be valuable factors, and a machine carrying two or more men armed with rifles would soon have the better of a single-man machine.

Armaments of Airships.

Seeing that in any kind of aerial craft, lightness and ease of manipulation are bound to be desired, it seems improbable that large guns can be carried, at all events in such vessels as we have to-day. A few rifles, perhaps of large bore, may be sufficient, and some form of rocket would undoubtedly be most effective against gas-balloons. Eventually it may be possible to use something in the nature of a pom-pom.

As regards explosive bombs, which may possibly be carried, a good deal of diversity of opinion seems to exist. As I have said, it is doubtful if a charge of explosive carried in a light case is likely to do much harm, whereas if enclosed in a strong shell the weight would soon mount up. It is reported that grenades weighing 90lbs. each have been made for trial by the German Government. Some form of incendiary bomb would be useful for dropping on balloons or for setting on fire stores, magazines, etc.

A missile of the nature of a dart with knife-like barbs could be made very light, and used for dropping on to balloons beneath, to cut holes in the envelope. The application of various chemicals have been suggested which would set light to hydrogen on coming in contact with it.

Land Defence Against Attack by Airship.

So long as we have no efficient aerial war machines, it is of the utmost importance for us to make such provision as we can in case war broke out with a power which possessed a number of such vessels.

Guns. First it is evidently necessary to immediately arrange for guns to be made or adapted to fire at a high angle. Every likely point of attack, such as arsenals and stores, even though far inland, should have arrangements for defence. Special guns should be mounted around it, and other appliances such as rockets, kites, etc., kept ready. Our present existing high-angle 10-inch guns can fire at an elevation of 70°, and could hit an airship travelling below 7,000 feet at any range up to 5,000 yards distant, although Colonel Stone, in a recent lecture, considered this no very adequate means of defence.

Several guns have recently been devised for the special purpose of firing at airships. Krupp has made several kinds, Ehrhard has a special gun mounted on a motor, and Vickers-Maxim have recently produced a new howitzer. I have not the time now to give further details of these guns.

Aerial Torpedoes on various different principles have lately been invented and tried. Some are of the nature of improved rockets, some are airships controlled by wireless telegraphy. But it is premature to give any opinion upon their efficiency.

It might be possible to form a sort of aerial mine-field similar in principle to a submarine mine-field, around any place

to be defended. When danger threatened, a number of kites, or, in the absence of wind, small captive balloons could be let up to a great height—say 4,000 or 5,000 feet—with explosive mines and electrical equipment. These should be arranged every few hundred yards apart right round the position. Any hostile aerial vessels trying to pass this cordon would have to approach within a hundred yards or so of the torpedo.

Musketry. Even rifle bullets can ascend to a good height—there is a diversity of opinion as to the exact effective range—and, if not able to wreck a dirigible, may wound aeronauts, damage engines, and so puncture the balloon as to prevent its being able to return to its country.

Guns on motor-cars are hardly likely to be able to successfully follow an airship, seeing that the latter may be going 30 miles an hour straight across country, while the motor has to go round by road. But they may be useful in rapidly moving to take up positions to protect any special district. If it was desired, for instance, to concentrate some force secretly, and move it to some place unknown to the enemy, balloon-destroying guns should be posted at intervals all around to try and drive off prying airships.

Fortifications may be improved by overhead cover and bomb-proof shelters. Explosives and ammunition must be stored in wells and underground magazines.

Conclusions.

To my mind there can be no doubt that the machines which are now actually in existence, both dirigible balloons and aeroplanes, can be made great use of in war; and it seems fairly certain that in another few years time their efficiency will be greatly increased. If properly used, not by ones and twos, but by hundreds, they will without doubt greatly affect our methods of warfare. Reconnaissance will be so much more efficiently carried out that the commander of a force will not be embarrassed by that uncertainty and lack of information which so often prevents him from taking the initiative. Operations will be quickened, and wars more rapidly lost or won. Raids into the enemy's country, which it seems impossible to entirely prevent, will, on the other hand, tend to hamper and delay his actions, and spread the zone of operations over the whole country.

Let us not forget that machines are now actually in existence that can come over, without warning, from the Continent, and it is more than possible that they might be the means of causing considerable damage to us, even risking their own loss thereby. Therefore, we *must*, and at once, make due preparation to defend ourselves against any such aggression.

I can now only hope that these few suggestions will be fully discussed by some of those I see here, who are more competent than myself to judge of the future possibilities of aerial warfare.

DIRIGIBLE BALLOONS.

—	Germany.	France.	Italy.	Austria.	Spain.	Russia.	Belgium.	Great Britain.
A. War dirigibles, efficient	7 Zepp. I. ,, II. Gross I. ,, II. ,, III. Pars. II. ,, III.	2 Col. Renard Liberté	1	1	1	2	1	1
B. ,, ,, old or small	1 1 Gross	2 Jaune V. de Paris	1	—	—	—	—	2
C. Privately owned, large	2 Zepp. III. Pars. I.	3 V. de Nancy V. de Bordeau C. Bayard	2	—	—	—	1	—
D. ,, ,, small	3 Clouth Ruthenb. R. West ?[1]	3 Zodiac I. ,, II. Malecot	—	1	—	—	—	2
E. Under Construction		4 Capt. Marchal Lebaudy[2] C. Bayard II.[2] Spiess	—	1	—	—	—	1
	5 Zepp. IV. Pars. IV. ,, V. Siemens. S. Shutte	—	—	—	—	—	—	—

[1] Badly damaged, perhaps irreparable. [2] May be bought by England.

Vessels in classes B, C and D cannot be considered really efficient for War purposes, though most of them might be used, under favourable circumstances, for local reconnaissance

This table has been prepared with considerable care, and is believed to be correct, although the classification may not, in all cases, be exactly right. There are very probably other vessels under construction, of which no details have been published.

The CHAIRMAN (Earl Roberts):—May I now ask Admiral of the Fleet Sir Gerard Noel to take my place.

[Earl Roberts here left the meeting, and the Chair was taken for the remainder of the proceedings by Sir Gerard Noel.]

Colonel J. G. CAPPER, C.B., R.E. (Commandant of Balloon School):—First of all I think the lecturer is much to be congratulated on the lecture he has given us, and also he is to be very much congratulated on the audience he has this afternoon. The size of the audience, I think, shows how greatly the general interest in this subject has increased within the last year or two. We have had one or two lectures in this Theatre on similar subjects, but none of them have been in any way attended by an audience of this size, and I find that all over the country the people are gradually waking up to the importance of this most important novelty. At the beginning of Major Baden-Powell's lecture I must say I was a little disappointed; I thought that he was merely advocating expenditure on aerial machines to ward off a bogie, but as he warmed up to his subject, I am glad to say that he appeared to have quite a different view, and at the end he went to the length of saying practically that he hoped in the next war we should be prepared to use these machines not in tens, but in hundreds. If other nations have these machines to bring against us and we have not, I think it will be very serious for us. If they have not, I do not see that that should be any reason why we should not do our best to arm ourselves in every possible way for any coming conflict. If they are foolish enough not to have them they are in the position of savages and we are in the position of civilised warfarers. At any rate, we ought to make the best of any new weapon of warfare that can be evolved. Generally speaking, I heartily agree with the lecturer in what he said, but I should like to offer some suggestions on one or two points that I have noted. I think perhaps the lecturer takes a somewhat exaggerated view of the difficulty of aerial navigation when weather conditions are adverse. Fog is, of course, a very great hindrance to any form of transit either by land or by sea. Even railways, with lines laid down for them, are hampered by fogs, and any vehicle that has no lines laid down for it to keep to must be still more hampered. Airships certainly are more hampered than ordinary land vehicles; but it must be remembered that fogs are very often local, and that they are often very thin. Whereas you can see for comparatively short distances looking along the ground through the fog, when you get up into them you can often see a great deal more than you would imagine. Another point is, that when you are fairly certain of your direction—although it is quite true, as the lecturer says, that at different elevations the wind changes in direction with surprising suddenness, so that you may actually by rising 1,000 or 2,000 feet change your course by as much as 90° or more—you have the great advantage in a dirigible balloon of being able to keep at the same altitude, a thing which is most difficult to do in a free balloon. If you know your course—and the course of a current of wind at the same altitude is very constant, rarely making any sudden changes of direction for considerable lengths of time—you can go on and be fairly certain of the general direction in which you are travelling, working on a compass bearing. I do not think there is much difficulty in working in clouds, because I should not anticipate that one would stay in the clouds for very long. My own experience of clouds is that even in a free balloon it is not often that you stay for a very long time in them without getting some sort of break

through which you can see the ground. In a dirigible balloon, if for the sake of hiding yourself you are keeping in the bottom of a cloud, it is only a matter of a few hundred feet to come out of it, and you only need to stay out for a few minutes to locate yourself from time to time with fair certainty. On clear nights there are so many things, if you have good maps, that will help you, that with practice I do not think we shall have such very great difficulties. Practice at working at night is everything, as soldiers know nowadays. Men who come fresh to the work lose their way very easily at night; but it is extraordinary how in even one season of night manœuvres the men improve in every possible way. It was surprising to me, who had little experience of them, when I went out one night, to see how, even on a misty night in a place without any landmarks, officers and men seemed absolutely certain of their position. The author has mentioned some distances which could be covered by tactical or strategical airships; but I think myself he has put much too small a task before them. I do not anticipate that any airship that can only go 10 or 15 miles will be of much practical use. Unless it took up a very small proportion of fuel, the engine it could take up would enable it to go but very very slowly. It must be remembered that the distance travelled is dependent upon the amount of fuel carried. You have to have a big airship in order to get your speed. We cannot at present get a speedy airship without also making it large. The amount of fuel used is under a pound per horse-power hour, and sufficient to take the balloon 100 or 150 miles is no large proportion of the total weight of the airship and its crew. I do not quite agree with the author as to the strategical reconnaissance. He says that no great benefit in a war between France and Germany would be derived by sending an airship to hover over Berlin. That may be true, but I think great benefit would be received by the French if they knew that large reinforcements were coming by railway from different parts, south or north, or were moving at considerable distances along the frontier in certain directions. All large concentration of troops must mean large movements by rail or road, and it is those big movements that I think that the strategical reconnaissance would discover. I cannot altogether agree with him either as to aeroplanes being used as mounted infantry or as cavalry scouts. I do not think that cavalry scouts anticipate jumping over the enemy's heads and over fences. I think a man in an aeroplane going low down across country, where he might expect to pass over extended troops at any moment, would have very little chance of getting back with his news. Also, he has not got the advantage that the man on the ground has, that he can stop to locate himself. I think he would find it very very difficult, unless he knew the country thoroughly well, to say where he had seen anything on getting back—if he was lucky enough to do so. I am entirely at one with the author in the conclusions that he draws, that we cannot pay too great attention to this new science or do too much to advance it and encourage it, and that we cannot make too great an effort to awaken the country to do everything in every possible way.

Captain T. G. Tulloch, R.A. (Reserve of Officers):—The lecture to which we have had the pleasure of listening is of absorbing interest at the present time by reason of the fact that we have no aerial fleet, whilst our possible future enemies have very respectable aerial fleets *in being*, and one of them at least has an aerial fleet which, so far as we are concerned, may be considered overwhelming. Its superiority lies not only in its numbers, but also in its provision of hangars, or docks, and repair depôts;

and what is of equal importance is the fact that experienced crews are ready to man that fleet. If we purchased a ready-made fleet of airships to-morrow we should have no place to put them in or means to inflate them, and no crews ready to man them. You can buy airships and hangars and gas plant at comparatively short notice, but there is one thing no one has ever been able to buy ready made, and that is experience. I venture to think, therefore, if the lecturer will excuse the remark, that it would have been more pertinent, under our present deplorable circumstances, had he altered the question "What use are we going to make of airships?" to "What use are other nations going to make of the airships they have already got and of those they are so rapidly building?" I make no apology for mentioning any country specifically, as I cannot see what good can come out of glossing over facts which stare us in the face, in an endeavour to disguise my meaning in diplomatic phraseology. Besides which I honour a country whose Government looks ahead several or many years, undeterred by the exigencies of party politics, clouded and befogged by pitiable and pitiful political opportunism. I therefore come straight to the point and ask: "What use is Germany going to make of the fifteen airships which she already possesses and of the twenty-five or twenty-six which she will possess by the middle of next year, or of the seventy which report says she will possess in about two years' time?" Not only will those airships be provided with docks and repair plant, but also with trained crews. Continuity of policy is strength, and nowhere is it better exemplified than in Germany, backed up by German thoroughness and German science. An eminent and far-seeing Frenchman said only a few days ago: "Germany, whilst preparing to become the mistress of the sea, is already mistress of the air"; to which I say: "And all honour to her for thus having been the first really to appreciate the enormous power which an overwhelming superiority in the air will confer—indeed, has already conferred upon her." Our marine fleet, splendid and strong as it is in every respect, can only move in one plane; but an aerial fleet can move in any plane. The strategical and tactical advantages of this are almost incalculable, to say nothing of the *moral* effect. In all the considerations of the subject matter of the lecture, so ably presented to-day by Major Baden-Powell, we must be careful to avoid criticising too closely the technical, and other limitations, of the present existing types of aerial craft, and we must not base our judgment upon what they at present can *not* do; but rather must we look ahead and endeavour, even at the risk of being called visionaries or alarmists, to form some idea of what they may be able to do eventually. The word "eventually" is, however, extremely elastic—it may mean to-morrow or it may mean ten years hence—but so long as there exists the chance of its meaning to-morrow we should consider the possibilities of aerial craft accordingly. Let it be remembered that it was only on the 15th of October, 1907, that Farman broke the record by rising in an aeroplane 18 feet and travelled a distance of 311 yards; and yet only two years later he remained in the air 4 hours 17 minutes at Châlons, and covered about 144 miles; whilst Paulhan, about the same time, ascended in an aeroplane to nearly 2,000 feet! On the 23rd July, 1909, Bleriot demonstrated that the United Kingdom was no longer an island, as the air knows no shores. The curve of progress in aviation has therefore taken an extraordinarily rapid turn upwards during the past two years, and when one considers that for hundreds—in fact, thousands—of years previously practically no progress had been made in aviation, one is bound to ask: "What will to-morrow bring forth?" Is it unreasonable, therefore, to suggest that this country should be awakened to

a sense of the potential danger which may come "*from out the blue*"; and is it not the duty of those who have studied the question to try and point out some possible—in fact, probable—forms of attack and the way to meet them? I know quite well that what I am going to say now will be looked upon by the "pooh-pooh" school as far-fetched, and by others as unpatriotic, as indicating to our possible opponents a certain form of attack which they otherwise might not have thought of. My reply to the former (*i.e.*, the scoffers) is, that I have been particularly asked not to indicate, in any way, exact localities, as the force of my arguments has evidently convinced certain well-known people of the dangers I will describe, whilst as regards the question of want of patriotism, I feel I should be entirely deficient in that quality if I did not endeavour to warn my country of at any rate one particular peril I see ahead. Added to this, I would remark that in all probability the same ideas which have occurred to me have also occurred to others beyond our shores. Briefly, then, I would inform you that it is possible for one airship, given reasonably fair weather, to prevent the British fleet from replenishing its magazines with cordite, and from getting practically any more manufactured for it for nearly a year. This damage could be done by one airship in twenty-four hours; and incidentally it could as well during that twenty-four hours set alight the whole of the shipping, wharves, and warehouses on the Thames from Gravesend upwards. This could all be done without dropping a single bomb or descending below about 3,000 feet, and without hovering over any particular spot. The statement doubtless sounds to many of you as an utter absurdity; but I can assure you that it is not considered to be other than a perfectly sane proposition by men in high official positions to whom I have given details, and it was those very men who agreed with me in thinking it advisable merely to hint, but not to give exact particulars of, the form this raid attack would take. Think what it would mean if our Navy had no reserves of cordite, and but very slow and reduced means of getting any fresh supplies manufactured. It would reduce the fleet to the position of a watch-dog, which, after a few weeks' war, not only couldn't bite, but which couldn't even bark! This will give you some faint conception of the handicap our fleet would labour under in the event of the happening I have briefly described. Having indicated the disease, it is desirable to indicate the cure, or rather the prevention, which is better. In the first place, I would mention that the track of the raiding airship, on the course I have in my mind, would never once come under the fire of any guns mounted in forts, or of any mobile armament, for two reasons: firstly, because none of the spots marked out for attack are near any forts, and even if they were, none of our forts mount any Q.F. high-angle guns; and secondly, because no Q.F. high-angle guns exist in this country which could be hurried up to any desired spot on diplomatic relations becoming strained. The 10-inch high-angle guns mentioned by Major Baden-Powell are old muzzle-loaders, and quite useless for use against moving objects. Therefore, whilst we are building and equipping our future aerial fleet and training the crews (which may take many months—in fact perhaps years), it is necessary, as indicated by Major Baden-Powell, that we should, without further delay, build a large number of light, high-velocity Q.F. guns on high-angle mountings, so arranged that they can be adapted to fit practically any chassis of a fairly powerful motor car, so that in the event of a motor car breaking down badly it would not put a gun out of action, as in such a case the gun with its own elastic recoil mounting could be transferred to another chassis without specially fitting the same. These guns should fire a very light shell, provided the same will give accurate

shooting, so as to ensure very high initial velocity and easy ranging without undue stresses on the mounting, besides which a heavy shell is quite unnecessary against air craft. The shell would carry a smoke "tracer" to assist ranging and to ignite the gas in the airship. The mere knowledge that such guns existed in large numbers in this country would act as a deterrent against raid attacks, but they can never take the place of the true form of defence against an aerial fleet, the only answer to which is *another* aerial fleet. This would perform many functions, which have been dealt with in the lecture; but the mere fact of the existence of an efficient and sufficiently numerous British aerial fleet would have a moral deterrent effect which I do not think has been fully appreciated, viz., the possibility that, with the true British love of adventure, the war might be carried into the enemy's country, for there is no knowing what a smart young airship commander might not do "on his own" once he had dodged round a cloud away from his admiral. Also, be it noted, that certain foreign nations have their eggs concentrated in fewer baskets than we have, which presumably our Intelligence Department know all about. In conclusion, I would say that I am proposing to send a letter to each candidate at the forthcoming Election, asking him to say "Yes" or "No"—I do not want any other answer—if he is prepared, if elected, to vote for the immediate provision of an aerial fleet, sufficient, in the opinion of the naval and military advisers of the Government, for the needs of the defence of our country, and whilst that fleet is building, the training of an efficient corps of aeroneers and the provision of the necessary hangars, repair depôts, and gas plants. There also will have to be considered the question of guiding lights and charts for inland navigation and many other matters germane thereto connected with the subject of aerial defence. And now I must offer my apologies for having trespassed so long on the good nature of this meeting. My excuse must be that I feel the danger which threatens our country is a very real one, and we may bitterly rue the days which we are losing by the lukewarm and dilatory manner in which we are proceeding in the question of aerial defence. The country therefore owes a debt of gratitude to Major Baden-Powell for the great work he has done in bringing the possibility of aerial war so forcibly to its notice, and I personally thank him for affording me an opportunity of adding my small voice to the chorus, small as yet, but which I hope will swell soon into an irresistible demand for *deeds* not *words*.

Mr. J. W. Dunne, Wiltshire Regiment (Reserve of Officers):—The strategical and tactical aspects of the subject have been so thoroughly discussed this afternoon by such very capable critics that I do not think I need to speak on that subject; but as a constructor of aeroplanes, I want to draw your attention to two or three particular aspects of the case, and the way in which they affect these military problems. I confess I am an advocate of the aeroplane and not at all of the dirigible balloon; but I wish to appear fair minded, and I will say what I can on behalf of the dirigible balloon. The great argument in favour of the dirigible balloon is that as you increase the size your resistance increases as the square of the linear dimensions, while your carrying capacity increases as the cube of those dimensions. If you double the over-all length dimensions of the balloon you have four times the resistance to forcing your way through the air, while you have eight times the carrying capacity. The advocates of this particular way of looking at things, I think, very largely overlook the fact that the framework of these rigid balloons is going up

very much in the same proportion as everything else; it is going up in some cases as more than the cube, and in very few cases as less than the cube, and long before you get to the sizes which some people advocate, you will find you are losing more than you gain. Of course, I am an amateur on this matter of dirigible balloons, but my idea is that the success of the *Zeppelin* is not due so much to its enormous size as to the fact that the load has been distributed between two boats in two different parts of the balloon, and therefore the strain in less on the framework. Still, we may admit straight off that we shall see balloons half as big again as the *Zeppelin*, probably carrying a considerable amount of petrol, and perhaps three motors. I do not think they will carry much in the way of men, as men are useless up there; but they will carry a very heavy supply of bombs and combustibles. I think combustibles are of the greater importance. Whether you can drop bombs on to a mark with any accuracy or not, there is no doubt that a balloon carrying 4,000 pounds of combustibles can do a lot of damage in an ordinary town, dropping it haphazard anywhere. In order to make a good defence against these balloons, it is necessary to have guns in the first place, and my own opinion is that in daylight and calm weather, if I were asked which I would rather back, the balloon or the gun, I would put my money on the gun every time. You have only to look at the diagram the lecturer has put on the wall to see how easily the balloon can be hit under nearly all circumstances. Although we have not got the guns now, I think we very soon shall have them. I am perfectly certain that our ordnance people can turn out some sort of projectile which can explode the balloon when it hits it. Possibly something in the shape of rockets would be of advantage, and if the ordnance people cannot make them, Mr. Brock, of the Crystal Palace, I am perfectly certain, could do so. When you come to think how extremely vulnerable these balloons are to the sort of gun that will be turned out—not the sort of gun you have now, but a better gun altogether—you will realise that balloons will be absolutely unable to get past these guns. It follows, of course, that these airships would take shelter behind the clouds, and that they would only come out on foggy days or in the night time. I don't think we shall be ever able to locate a dirigible balloon with a searchlight; the mist would reflect the rays back. As regards clouds, an airship could appear through the clouds and go back again without your seeing anything of it at all. But under those circumstances there is a far more dangerous enemy that the dirigible balloons would have to put up with, and that is the aeroplane. It is on those very occasions, the cloudy and misty days and nights, that the dirigible balloons will be liable to be attacked by the aeroplane. Generally on fine days it could see the aeroplane circling up slowly, and would have time to escape; but at night time or in cloudy weather the balloonist would not see where the aeroplane was. Personally, I should not like to be a commander of a dirigible balloon who had an idea that there was a hostile aeroplane up in the sky with him. The limit of speed in a balloon is very marked. Those who have gone in for naval architecture know what difficulty we have in increasing the speed of a ship from twenty-two to twenty-five knots, and the difficulty is exactly the same with a dirigible balloon. I do not think we shall ever be able to increase the speed of them very much over thirty-five miles an hour. The horse-power goes up as the cube of the speed, and that is a very serious matter. In the aeroplane one has more or less the same sort of thing to contend against, except that the aeroplane, by reducing its area, folding its wings, can at any time get up an enormous speed by sacrificing some of its

height. I do not think a couple of hundred miles an hour will be anything at all exceptional. An aeroplane which is above a dirigible balloon in that way can swoop down at that sort of speed on to a balloon, trailing a grapnel, and rip the balloon in half and get away again. In a duel between a dirigible balloon and an aeroplane, the balloon has no chance at all. There is, however, another aspect of this duel between the two, and that is this: the dirigible may get away, but it has to come down somewhere sooner or later; it cannot stop in the air indefinitely, and when it is down on the ground it is perfectly helpless before aeroplane attack. An aeroplane which was constructed to go past the enemy's lines to the particular spot where an anchored dirigible balloon was noticed, would have to be one which could fly very fast and fairly far. It has got to get down pretty close to the ground to destroy the balloon, by dropping a bomb on the back of it, and it has probably to go through a rain of bullets. There may not be guns, but there will no doubt be troops there, and the aeroplane will have to take very big risks. The aeroplanes that have been constructed by civilians are entirely useless for military purposes. They are nearly all made with the lightest possible framework, generally using what is called a single intersection truss, which means that if one bullet cuts one single wire or stick, the whole thing collapses like a pack of cards. The first essential for a military aeroplane for going past an enemy's lines to attack dirigibles on the ground behind, is that the wing would have to be so made that it can be punctured by bullets without the whole thing collapsing, which involves a sort of internal lattice construction, and these machines will be monoplanes, not biplanes. This lattice construction is heavier and altogether more expensive, and it would not make for efficiency; but it seems to be the only thing for a military aeroplane, and I want you to note that point. The other use to which these aeroplanes would be put in war, after the question of attacking a dirigible, is scouting, and here you want a rather different sort of machine. In the first place, you want to go high because you cannot see very well if you are flying low at any great speed. You want to go some forty miles in a circle; you do not want to keep up in the air for any length of time, because, of course, the commander wants the news brought to him red-hot. You will not go anywhere near guns nor where you are exposed to bullets. Therefore, the particular construction for that machine is to make it very reliable and able to fly moderately high. Probably it would carry two motors and a passenger, because no doubt the aeroplane man would take up a staff officer. For defence against dirigibles at night, the one essential is that the aeroplane should be able to go very high. With regard to the use of aeroplanes at sea, I do not think they will be very much good. I do not see that an aeroplane is going to give any more information about the enemy's fleet than the fast scouts are able to do. In the first place, the speeds of the aeroplane are dependent on the speed of the wind. If an aeroplane has a speed of thirty-five miles an hour and the speed of the wind against it is the same, it simply stands still; whereas the speed of the fast scout on the surface of the water is not affected in that way. I am inclined to think you will do far better by having some sort of kite arrangement attached to the fast scouts. I do not think an aeroplane will do the slightest harm to a battleship. It may have a great moral effect at first, as the thing is new, and it may cause a certain amount of confusion by dropping combustibles on the deck; but that will soon be stopped by the high-angle guns. There is no doubt, however, that they could destroy all sorts of small craft, such as torpedo boats and torpedo boat destroyers, and in order to destroy such craft they would fly very

low. Probably they would put a bomb at the end of a wire and trail it across the deck of the ship they were after. I believe on the shores of one of our neighbours there is a network of canals through which torpedo boats can pass from one part of the seaboard to another, and aeroplanes working in the way I have described might do a lot of damage to those ships. Beyond this I do not think they will be of much use for naval work. The point I want to impress upon you this afternoon is this: All those aeroplanes designed for those different military purposes will have to be in different classes. In the first place, you want one that will fly high; in the second place, one that will fly fast; and in the third place, one that will be bullet-proof. Even now it is quite practicable to carry an armour plate under the man. The average aeroplane of the present day has only about two hundred pounds of spare lift that it can carry over and above the motor; therefore you cannot construct one which will possess all three of those qualities. What the civilian constructor is going to do with his two hundred pounds of spare lift is to put in a passenger and make him as comfortable as possible, and carry a little more petrol; but he is not going to destroy his efficiency by building up his wings in the way I say, or by putting on an armour plate, nor his chance of a sale by placing the man in a prone position, which would be absolutely essential in a military machine. Therefore, if you want these military aeroplanes you will have to design them yourselves or offer prizes for somebody to do it. You will not be able to pick them up on the trees or by the roadside or buy them in any shop. They are absolutely different from those the civilian requires, as different as a torpedo boat is from a yacht. The competition among aeroplane makers is far too keen to permit any aeroplane man to spend £3,000 or £4,000 in experiments on a military aeroplane which may be refused by the Government later on. In my opinion, the work ought to be done by the War Office itself. They can spend money on speculative experiments which these civilian firms cannot do.

Colonel F. G. Stone, R.A.:—I have only one criticism to offer on Major Baden-Powell's lecture, and that is that I think he is a little too sanguine about the effect of musketry and revolver bullets on dirigibles. I will not quote at length the two passages in which he anticipates that musketry and revolver bullets would have a more or less disastrous effect upon dirigibles, but I will quote experiments which were made in the very thorough manner in which the Germans are accustomed to do everything. Last March, I think it was, two companies during their field training were given the special job of trying to destroy a dirigible—in this case a captive balloon, because for the purpose of destruction it was not necessary it should be on the move, the destruction of the gas bag so as to bring it down by rifle fire only being aimed at. The results are probably well known to many amongst the audience here, and without entering into details I may say the results were absolutely ineffective. A good many holes were made in the gas bag, but the holes automatically sealed themselves up to a very great extent, and when they did not, the gas escape was so infinitesimal compared to the enormous volume of gas still remaining in the gas bag that there was not the slightest danger of the balloon being brought to earth. Perhaps Colonel Capper will correct me if I am wrong; but I take it that any dirigible may sail with perfect confidence so far as any danger from rifle bullets is concerned. There is a subject which has been touched upon once or twice at various times, but of which I think no practical solution has ever been offered, viz., how we are to protect ourselves from hostile dirigibles at night. Colonel Capper some

time ago, and Captain Tulloch just now, very rightly said that our fleet of dirigibles—which we have not got, by the way—would not stand on the defensive, but would go and attack the enemy and destroy the enemy's dirigibles in their hangars, and so on. As I say, we have not got them yet; but even supposing we do get them, and our aeronauts naturally undertake the offensive *rôle*, I do not see how that is going to prevent night attacks on certain vital areas such as Captain Tulloch alluded to somewhat obscurely but which he had previously told me about very fully. I don't see how we are going to spot these dirigibles when they come and hang over a vital spot, such as a cordite factory or a repairing factory, or something of that sort, or how we are going to destroy them. I suggested myself electric lights, in the same way as our harbours are protected against torpedo attack, round such spots. That suggestion was naturally open to a great deal of criticism, but I do not remember that anybody has since made any other suggestion of a practical nature until the author this afternoon suggested aerial mine-fields. Whether that is a practical suggestion or not it is very difficult to say. In fact, I think the subject is such a difficult one that perhaps it merits rather more attention than it has hitherto received. We all talk as if hostile dirigibles were going to be used against us during the daytime. I fancy that in Captain Tulloch's summary of the extreme danger to which we are exposed, he was thinking, from what he said to me before the lecture, more of what can be done by a dirigible in daylight than what can be done at night. I confess that a dirigible that had provided itself with maps of this country—which I have not the slightest doubt will be an accomplished fact before very long, that is to say, maps to be used by dirigibles in the air—will be able to locate such vital spots as cordite factories and repairing docks with the greatest accuracy; and the experienced aeronauts whom we shall have to do with will be able to spot those points at night as well as by day. Colonel Capper has just said that he himself has been quite surprised at the facility with which our own people can locate themselves at night with comparatively small experience. What, then, may we expect from another Power with infinitely more experience and possibly more determination to use that experience to the fullest capacity? The fact still remains that, so far as I am aware, no practical solution of this particular conundrum has been attempted to be discovered by experiment, although one or two solutions have been suggested. The problem is, how to protect ourselves against attack on vital points by night?

Captain MARRIOTT:—The ground over which I intended to go has been so completely covered by the speakers who have already spoken, especially Captain Tulloch, that I have only a few words to say to you. The lecturer spoke of the lights of towns as being one method by which airships would be able to find their way at night, but he suggests that those lights might be extinguished purposely at any time. Now, I should be very sorry to be living in a town where all the lights were extinguished simply because it had been heard that we were going to be attacked immediately by an air fleet. I should hardly suppose that proper arrangements were being made for my protection under those circumstances. I cannot imagine, in fact, a town in utter darkness waiting with all its lights out for an air fleet to appear on the scene, if the town had any common-sense. We have heard a great deal about reconnaissance and other ways of finding information; but it seems to me that although that is very interesting, the vital point is, as the last speaker tells us, what are we going to do if we are attacked by these things? That is admitted to be

absolutely an open question, and I suppose that is the reason why we have been all avoiding it so carefully for so many months. I do not think I need say more than echo the sentiments of the other speakers, that there is nothing to be done but to get airships of the same sort that our possible enemies have. With regard to the height dirigibles can reach, I understand from the lecturer that he did not apprehend they were going much higher than 5,000 feet. Balloons have actually gone up very much higher. Glaisher and Coxwell are supposed to have gone up to a height of 37,000 feet; they came back alive with some difficulty. But I do not see any reason why a dirigible should not reach a height of 20,000 feet. Perhaps that is because I do not understand sufficiently what there is to prevent it. I understand from the lecturer that one-sixth of the balloon would be taken up by an internal air balloon; but it seems to me that that might be improved upon, and I see no reason why a dirigible in future should not go up to 20,000 feet, carrying oxygen for the use of those who are employed in navigating it. For that reason I think it is questionable whether we can depend upon our aeroplanes to deal with these dirigibles in all cases, when they are so easily able rapidly to ascend to such heights. Of course, I hope that the aeroplane will be able to do such things, but it appears to me we have no immediate prospect of getting to that point.

Major B. BADEN-POWELL, in reply, said:—I really do not think that I need detain you very long because, I am glad to say, those gentlemen who have been kind enough to criticise the lecture have rather backed up my general opinions. As regards what Colonel Capper said, I can only thank him for the valuable additions he has made to my remarks. When he criticises my observation that strategical reconnaissance would not be of importance at a great distance, it seems to me—although it is a matter of opinion—that it would be very difficult to get any real information of the movements of troops at a great distance. You may, of course, see trains moving along from a considerable height, but it would be very difficult to say exactly what those trains contained, and where their destination might be. Then with regard to the cavalry, it seems rather to be forgotten that the cavalry, as it is, have to run great risks in reconnoitring. They go out as a rule in a given direction until they are fired on, and then they come back with the information. It might be the same with the aeroplane. That would go out a certain distance until fired upon, and then it would turn round and come back again, and it may come back much faster than cavalry can. Captain Tulloch said something to the effect that I had not suggested what our enemies could do. Well, it is just as well to be silent on that point. I do not want to make suggestions to them as to the weak spots we have in this country. When he made the statement that there are certain points very liable to attack, I thoroughly agree with him, because I know what he said was very true. I feel inclined to doubt the statements he made about the German airships, but our information on what the different nations actually do possess or are building is very vague; but it is well to be prepared for the worst. I am very much in favour of what Mr. Dunne said about the designs of aeroplanes for warfare. I do think that we ought to encourage inventors to produce a machine specially suitable for war purposes. When Colonel Stone speaks of bullets not having any very great effect on the dirigible balloons, I may say that I was referring to the compressed gas balloon, the non-rigid and semi-rigid. We know that the gas in those is under considerable pressure, so that a small hole in them

will have more effect than it would on an ordinary balloon, where the gas is not under pressure. Although I do not say that you could bring a balloon down at once by putting a few bullets through it, it is to be remembered that that balloon, directly it gets a little bit flabby and loose, loses its manœuvring power, and is unable to keep up its speed; therefore, as I said in the paper, it is unlikely to be able to get back to its own lines. Captain Marriott spoke about the difficulties of extinguishing the lights of a town; but I do not know that there is any very great difficulty in that. We know how in the war in South Africa, for instance, it was sometimes ruled that all lights were to be put out at a certain time and the towns were in absolute darkness. As for the reason why a dirigible should not go high, that is, as every balloonist knows, a matter of size. If you require a balloon to go up to a height of 20,000 feet, you would have to inflate it only about one-third full—that is to say, it would be only able to lift one-third the weight off the ground that it could lift if it were completely filled, and that of course is a considerable objection. You would have to make the machine so very much larger than is necessary if you are not going to that great height. I think those are sufficient answers to the questions, and I can only thank you very much for the kind way in which you have listened to the remarks, and thank the speakers for the addition they have made to the paper.

The CHAIRMAN (Admiral of the Fleet Sir G. H. U. Noel):—Before asking you to accord a vote of thanks to the author, I should just like to make a few remarks. I think in this question we may say that we are all "in the air." It is something to be on the sea instead of on the land, but when you get into the air, I think we are perhaps a little less certain of where we are. Dirigibles are no doubt the great offensive air machines: they can carry material that will do harm; but I think there is very little doubt that they will have to act at night if they want to do real damage. They can then perhaps approach unseen and hover over the position and do a great deal of damage. It seems to me that navigating in the air must be a very considerable difficulty. If you are up in the air in the dark, how can you tell one town from the other? How can you tell one position from another? It must be a matter of years of experience for an aeronaut to be thoroughly *au fait* at navigating, and I think it will be years yet before aerial navigation will be thoroughly understood and a real danger. Now as regards the aeroplane. We in England in all these matters are generally very much behind, but I always consider that the English in the end come out on top. We can all remember when motors first came across the Channel; practically every motor you saw had a foreigner for a chauffeur; but what is the case now? We have thousands and thousands of chauffeurs, all English. Aeroplanes are now beginning to take hold, and there are hundreds of young fellows only too anxious to get up into the air, and I believe that our real defence will consist in being able to put a large number of people into the air on aeroplanes. The enemy will then have to think twice before he comes across the Channel. It is the aeroplane that is the sporting thing and appeals to the Britisher, and it is the aeroplane, I believe, that will be our true defence. We have heard a very interesting discussion, especially from Captain Tulloch, Colonel Capper, and Mr. Dunne, the latter interesting us as an experienced constructor of aeroplanes. I think from the paper, combined with the discussion, we have learned a very great deal to-day. I therefore conceive it my duty to express on your behalf our grateful thanks to the lecturer for his lecture.

WATERLOO, AND THE DE LANCEY MEMORANDUM.

By Major-General C. W. ROBINSON, C.B.

THE Memorandum by Sir William De Lancey, Deputy Quarter Master-General of the Army under Wellington at Waterloo, in 1815, and entitled "Disposition of the Army at 7 o'clock a.m., June 16th," is well known to all students of the Waterloo campaign, and has formed a puzzling document to very many.

Several circumstances have contributed to make it so, such as the death of its compiler, mortally wounded at Waterloo two days after it was written; the fact that we possess no original of it but only a copy; and lastly that until long after Waterloo no allusion was made to it.

Of recent years it has attracted more attention than otherwise ever would have been the case, because, both abroad and in England, it has been assumed as probable by several writers that it misled Wellington in his important letter to Blücher, written from the heights behind Frasne, near Quatre Bras, at 10.30 a.m. on 16th June; and also because it has been condemned—quite apart from the question of whether it misled Wellington or not—as a confusing, incorrect document, discreditable to its compiler and to Wellington's Staff.[1]

Ropes alludes thus to it:—

"That this 'Disposition' was relied on by Wellington when he wrote his letter to Blücher seems, by comparing the two papers, to be very clear"; and describes it as,

"The most misleading statement ever drawn up for the information of a Commanding General" (Ropes, "The Campaign of Waterloo," 4th Edition, 1906, and also previous one of 1893, pp. 86 and 113).

Added to this, the letter to Blücher, based (as assumed above) upon this paper by Sir W. De Lancey, has been held by Continental writers, though upon no good foundation, to

[1] See "Waterloo, a Narrative and Criticism," by E. L. Horsburgh, p. 50. Ropes' "The Campaign of Waterloo" (1906), pp. 86-88, and 113; De Bas and Tserclaes de Wommerson "La Campagne de 1815 aux Pays Bas" (1908); W. O'Connor Morris "The Campaign of 1815" (1900), p. 98, and many other writers of recent years.

have deceived the Prussian Commander-in-Chief into fighting at Ligny, where he was beaten—a supposition which has widened further, in many minds the effect of this Memorandum.

Thus this Staff Memorandum by Sir W. De Lancey, who was practically Chief of the Staff to Wellington, has become, through circumstances, both of historical consequence and of much interest, especially to British officers, although intrinsically it contains nothing of special value.

It seems, however, to the writer of these pages to be—to say the least—extremely probable that this "Disposition," or "Memorandum," has been simply misunderstood; that the usual interpretation put upon it has been erroneous; and that—for reasons given further on, the weight of which can be judged by all[1]—it has been condemned as incorrect, merely through a misapprehension of its meaning, and of the design of its compiler.

This view has been recently materially strengthened by reflection upon the double meaning which the title of the Memorandum will bear; by a careful comparison of Wellington's "Instructions to the Army on June 15th and 16th, 1815," as published in the 1st Edition of the Wellington Despatches of 1838, with those published in the revised Edition of 1852; and by a consideration, particularly, of the "Additional Instructions" issued to the Reserve in Brussels at 10 p.m. on 15th June. These, it is to be noted, appear solely in the Edition of 1852, and not in the earlier one, nor in the "Supplementary Despatches" of 1863—which are only "supplementary."

It is upon this account, and because the De Lancey Memorandum has attracted much unfavourable criticism, which reflects, perhaps very unjustly, upon the capacity of its compiler, a distinguished officer, who died of his wounds at Waterloo, that the writer ventures to think that the following remarks may be of service.

The Interpretation of the Memorandum now put forward can scarcely, he hopes, be deemed strained or unreasonable; and he would add that although it is simple, he has never himself hitherto seen it suggested, though perhaps it may have been so.

If there is any flaw in what is urged, military readers will soon detect it; if there is not, it will be a satisfaction to have contributed to place the Memorandum in a light more consonant

[1] The writer appeals to the patience of his readers to follow arguments based necessarily upon various details. To save reference to books, the De Lancey Memorandum, and also "Wellington's Instructions to the Army," given on June 15th and 16th (as published in the 1838 and also in the 1852 Editions of the Despatches), with the explanatory notes contained in these Despatches, have been placed on the Plate attached. If the reader will refer to this Plate as he reads, he will readily follow what is said.

than its usual interpretation does, with that ability which had been displayed by its compiler as a Staff Officer throughout the Peninsular War, and had led to his selection by Wellington to be Deputy Quarter Master-General of the Army in the Waterloo campaign.

Before discussing the purpose of the Memorandum it is convenient to state certain facts regarding it.

We possess, as has been said, no original of this paper, but only a printed copy of a copy, which in itself is likely to lead to misconception regarding the original.[1] Our knowledge of it is entirely derived from a statement respecting it by General Sir De Lacy Evans,[2] and from his copy of it, probably hurriedly jotted down. This copy with his statement[3] as to it, together with copies he had made of Wellington's "Instructions for the movements of the Army on June 15th, 16th and 17th, 1815"—the originals of which Instructions were all lost, with Sir W. De Lancey's papers, at Waterloo—was sent by him years after the campaign to Colonel Gurwood, compiler of the Wellington Despatches.

It does not appear in the 1st Edition of the despatches of 1838, but does so in that of 1852, and is given also in the Supplementary Despatches of 1863.

Notes given in the Despatches, explaining how Sir De Lacy Evans came to be in a position to make copies of the original "Instructions" (and it may be assumed of this Memorandum as well); and the manner in which the columns of the latter should be read, show this sufficiently clearly, and will be found on the Plate attached.

The copy of the Memorandum, as printed in the Despatches, has no headings to its columns, no entry of the hour when, or place where, the original was compiled, and no signature of its compiler.

Therefore, the Memorandum, if sent to Wellington, had upon it something more than is in this copy; or, if given to him, was accompanied by a verbal explanation. The copy as we have it would, without Sir De Lacy Evans's statement as to it, be entirely incomplete, and doubtless is not in the exact form in which the original, without further explanation, would have reached Wellington.

It is, in no sense, an "Instruction" to the Army, although owing to the position in which it happens to have been printed in the 1852 Edition of the Despatches, in the midst of such Instructions, that impression may occasionally have arisen.

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[1] See Notes beneath the Memorandum on Plate attached, as to discrepancies and errors which creep into such copies of original documents.

[2] General Sir De Lacy Evans, a distinguished officer, saw much active service in the Peninsula, America, at Waterloo, and in the Crimea, where he commanded a Division. He died in 1870.

[3] Given on Plate attached.

It should thus never be discussed and criticised, as it sometimes has been, apart from Sir De Lacy Evans's statement in explanation of its columns;[1] for he alone, so far as we know, in addition to Sir W. De Lancey himself, was aware of its purpose. We may, however, accept with confidence what Sir De Lacy Evans says,[2] viz., that it was compiled by Sir W. De Lancey for the information of the Commander of the Forces; and, under that statement, the view, which has occasionally been taken, that it was perhaps put together by some subordinate officer, can never be convincing or satisfactory.

It is most natural that Sir De Lacy Evans should have been, as he says, with Sir W. De Lancey when the Instructions to the Army of 15th, 16th and 17th June were issued, and thus had the opportunity to copy them (and this Memorandum also), because it is mentioned in his Biography[3] that he had "returned to Europe (from America) just in time to join Wellington's Army in Belgium, and was at once attached to the Staff of Picton's Division, then in Brussels, as Deputy Quarter Master General."[4]

He had been employed also in the Quarter Master General's Department in the Peninsular War, and in that with America, which had just terminated, and after Waterloo was appointed Assistant Quarter Master General with the Army of Occupation. He had experience in the Quarter Master General's branch of the Staff, and at a time of pressure, such as that of the 15th, 16th and 17th June, could be of service to Sir W. De Lancey, and might naturally have been called in, if available, to assist him, or may have gone to the Head Quarter Office for information for his own immediate Chief.

From the title and contents of the Memorandum we can gather this (in some respects important) fact that it was certainly completed, if not entirely put together,[5] *after 7 o'clock a.m.* on

[1] Given on Plate attached, at the end of the Memorandum.

[2] See Note below the Instructions for the Movements of the Army (as given in 1852 Edition of the Despatches) on Plate attached.

[3] See Dictionary of National Biography, "Sir De Lacy Evans."

[4] The more correct term would no doubt be Assistant, or Deputy Assistant Quarter Master General. Ropes (p. 86) mentions that Sir De Lacy Evans was in 1815 acting as Extra A.D.C. to Major-General Ponsonby, commanding a Cavalry Brigade—and this he apparently was. Probably, however, he was on emergency made available for more than one duty—and as he was a Major (becoming Lieut.-Colonel after Waterloo), his post as Extra A.D.C. was temporary only. He says himself that he copied the Instructions for the 17th June from the Duke's writing, adding, "Saw the Duke write them while seated on the ground." (These Instructions for the 17th June are not given here, as they do not concern the Memorandum, but see Wellington Despatches, Vol. VIII., page 144 of 1852).

[5] We may gather, indeed, that it was commenced as well as completed *after* 7 o'clock a.m., because the 2nd entry in the Centre Column, "Braine le Comte," with reference to the 2nd Division, was apparently entered about that hour, as the 2nd Division was directed to Braine le Comte under order to Hill of 7 a.m., June 16th.

16th June, for this indicates that it was compiled not at leisure, but in haste.

At that hour the troops had left Brussels for the front; Wellington himself was about to set out for Quatre Bras,[1] and all was necessarily excitement and hurry.

It has been generally assumed, though this is not certain, that Sir W. De Lancey wrote the Memorandum in Brussels, and gave, or sent, it to Wellington just before the latter rode off to Quatre Bras, from beyond which place, at 10.30 a.m., he wrote his letter to Blücher.

Indeed, if Wellington had read this Memorandum before he wrote that letter, the probabilities are that the assumption is correct; for he rode quickly to Quatre Bras, and thence went on to the heights behind (north of) Frasne, whence he despatched it. According to the Oldfield MSS., Sir W. De Lancey did not accompany him out of Brussels, remaining behind to write some orders; and he (Sir W. De Lancey) is not alluded to as having been with Wellington at the interview with Blücher at Bry.[2]

Let us now consider the Title of the Memorandum, which ought to convey its intended purpose.

The words "Disposition of the Army at 7 o'clock, June 16th," will bear two entirely different interpretations,[3] either of which might have been in the mind of the writer of it[4]:—

1. *The Disposal* of the Army, in the sense of the arrangements made for it, and directions given to its various divisions, etc., under orders issued up to 7 a.m. inclusive.
2. *The Position* of the Army, in the sense of its situation, and the places its various divisions had *reached* at 7 a.m.

The accuracy of the Memorandum seems to depend upon which of these two interpretations expresses what was in the mind of Sir W. De Lancey, who compiled it.

Under the first interpretation, the first line of the Memorandum would mean:—

> The 1st Division, which had been *directed on* Braine le Comte, is now marching to Nivelles and Quatre Bras.

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[1] The hour at which Wellington is said to have set out varies from 6 to 8 a.m. on the 16th, but 8 is that given by Lord FitzRoy Somerset, the Military Secretary. Probably he was in the saddle before 8.

[2] The Oldfield MSS. were written by Major John Oldfield, Brigade Major R.E., during the Waterloo Campaign.

[3] The word "Disposition" is defined in the Dictionary as (1) the action of setting in order, arrangement; (2) the relative position of parts to a whole. (New English Dictionary—Murray and Bradley, Oxford, 1897).

[4] The writer of the Title, as well as of the Memorandum itself, was presumably Sir W. De Lancey; but by possibility Sir De Lacy Evans may have added the Title as well as his explanation to the Memorandum.

Under the second interpretation, the first line would mean:

> The 1st Division, which was *at* (*i.e., had reached*) Braine le Comte, is now marching to Nivelles and Quatre Bras.

It will be seen that between the two interpretations there is a radical difference.

Under the first interpretation, as we will endeavour to show, the entries in the centre, as well as in the right column, are found to be substantially correct, and the whole Memorandum intelligible. It becomes then a simple précis, or summary, of how the various divisions, etc., had been directed, under Wellington's orders, up to 7 a.m. inclusive, quite irrespective of whether they had reached or were near the places which they had been directed on, by that hour, or not.

Under the second interpretation—the one which it may be said has been universally adopted—the centre column is viewed as very incorrect, because it is taken as indicating the places at or near which Sir W. De Lancey had assumed that the various divisions had by 7 a.m. (and in each instance) *arrived*, which facts afterwards proved that many of them had not.

We now propose to apply the two interpretations in turn to the details of the Memorandum, beginning with the first, which we believe to be the one which most probably expresses the true purpose of Sir W. De Lancey, viz., to give Wellington a *précis* of how the divisions of the Army had been *directed*, up to 7 a.m. inclusive, under his instructions—and nothing more than that.

Let us examine the centre column of the Memorandum from the top downwards, comparing its entries with the Instructions to the Army given by Wellington in his own handwriting,[1] for Colonel De Lancey, and which we refer to here in the "Remarks."

These entries are as follows:—

	Entries in Centre Column.	*Remarks.*
1st Division.	Braine le Comte.	It had been directed there. *See* 10 p.m.[2] order (Additional Instructions) of 15th June.

[1] See Note with Wellington Despatches of 1852, given on Plate attached.

[2] The 10 p.m. orders, termed After Orders or Additional Instructions, appear to have been despatched to Corps between 10 p.m. and midnight on June 15th approximately.

	Entries in Centre Column.	*Remarks.*
2nd Division.	Braine le Comte.	It had been directed there. *See* 7 a.m. order to Lord Hill of June 16th (Edition of Despatches of 1852, but omitted in Edition 1838); *see* Notes below Memorandum.
3rd Division.	Nivelles.	It had been directed there. *See* 10 p.m. order (Additional Instructions) of 15th June.
4th Division.	Audenarde.	That portion beyond the Scheldt had been directed there. *See* 5 p.m.[1] order No. 6 of 15th June.
5th Division.	Beyond Waterloo.	It had been directed to "Beyond Waterloo."[2] *See* 10 p.m. order (Additional Instructions) of 15th June (Edition of Despatches of 1852, omitted in Edition of 1838.)
6th Division.	Assche.	No order for it to proceed to Assche is preserved; but it certainly was sent there. *See* order of 16th June to Sir J. Lambert, directing it to march *from* Assche on 17th (last Note on Plate).
5th Hanover'n Brigade.	Hal.	It belonged to the 5th Division, and had been directed there. *See* 5 p.m. order of 15th June, in Edition of Despatches of 1838.
4th Hanover'n Brigade.	Beyond Waterloo.	It belonged to the 6th Division, and had been directed there. *See* 10 p.m. order (Additional Instructions) of 15th June, Edition of Despatches of 1852.
2nd Division 3rd Division (Army of the Low Countries)		Not alluded to under the centre column, but under the right only.

[1] The 5 p.m. orders appear to have been despatched between 5 and 7 p.m. on June 15th.

[2] The Orders were (see Edition of the Despatches of 1852 given on Plate attached) to "march from Brussels by the road of Namur to the point where the road to Nivelles separates." This point, it is important to notice, is about 2 miles south of Waterloo, which would be properly expressed by a writer in Brussels as "Beyond Waterloo."

	Entries in Centre Column.	*Remarks.*
1st Division and Indian Brigade.	Sotteghem.	They had been directed there. *See* 5 p.m. order No. 11 of 15th June (Ed. 1852).
M.-Gen. Dörnberg's Bde. & Cumberland Hussars.	Beyond Waterloo.	They had been directed there. *See* 10 p.m. order (Additional Instructions) of 15th June, Edition of Despatches of 1852.
Remainder of the Cavalry.	Braine le Comte.	It had been directed there. *See* 7 a.m. order to Lord Hill of 16th June, Edition of Despatches of 1852.
Duke of Brunswick's Corps.	Beyond Waterloo.	It had been directed there. *See* 10 p.m. order (Additional Instructions) of 15th June, Edition of Despatches of 1852.
Nassau Corps.	Beyond Waterloo.	It had been directed there. *See* 10 p.m. order (Additional Instructions) of 15th June, Edition of Despatches of 1852.

The above comparison of the entries in the centre column of the Memorandum with Wellington's "Instructions," shows that, viewed as a précis of how the army had been directed under those instructions, the Memorandum, in its centre column, becomes substantially correct. We use the word "substantially" merely because, in the case of the 4th Division, the *whole* Division had not been directed on Audenarde, but only that portion beyond the Scheldt (the remainder having been directed to Grammont).

In other respects, and although it was (as we have said) most probably hurriedly compiled, the Memorandum agrees perfectly with the Instructions.

Moreover, the view that the entries in the Centre Column were meant solely to indicate the places which the troops had been directed to (not had reached) is strengthened by Sir De Lacy Evans's explanation of the Centre Column, given with the Memorandum (see Plate), for he says: "The Centre Column of names indicates the places at which the troops had arrived, *or were moving on.*" He does not say that all the troops had reached those places; but yet the idea that Sir W. De Lancey implies that they had all done so, and by 7 a.m., is that (as we shall show later), on which the correctness of the Memorandum has been impugned.

There is no dispute that some of the Divisions, etc., had reached the places entered in this Column, upon which they

had under orders been directed[1]; but what is here contended for is, that while some had reached those places and some were still "moving on" them, all had been directed on to them; that it is probably very unjust to Sir William De Lancey to suppose that he meant to imply anything more; and finally, that his Memorandum is but a brief précis, hastily jotted down, and summing up for Wellington's information how the Divisions, etc., up to 7 a.m., had been directed in consequence of his Instructions; and not a calculation of the spot each Division, etc., had reached at 7 a.m.

To turn now to the Right Column.

Comparatively little need be said as to this column, for the insertion by Sir W. De Lancey of the words "marching to" before every entry in it, with one exception, shows of itself that the troops had been directed by Wellington's orders upon the places named in it, and also that in Sir W. De Lancey's view, they had not, by 7 a.m., arrived at them.

The "one exception" applies to the entry that the 2nd and 3rd Divisions of the Army of the Low Countries were, at that hour, 7 a.m., "*at* Nivelles and Quatre Bras."

The 2nd Division (Perponcher's) was at Quatre Bras; but the 3rd Division (Chasée's) did not reach Nivelles until nearly noon.

With regard to this one division, therefore, Sir W. De Lancey had, it seems, anticipated that it would be "at" Nivelles earlier than it was. The division was cantoned at Roulx and near Binche, some 15 or 16 miles from Nivelles, when, by 5 p.m. Order of 15th June,[2] it was ordered to "collect at Nivelles."

Therefore it seems perfectly possible that had it marched very early on the 16th, it would, by 7 o'clock, have been nearing, or "at," Nivelles.

But further than this, before we can safely build up arguments as to the correctness or otherwise of this entry, we should require to see the original Memorandum.[3]

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[1] Ropes, though looking at the Memorandum in quite a different light from that here urged, considers it probable, for instance, that by 7 a.m. the 5th Hanoverian Brigade had reached Hal; the 6th Division, Assche; the 1st Division and Indian Brigade, Sotteghem; and the 4th Division (*i.e.*, a portion), Audenarde.—(Ropes, pp. 111, 112).

[2] See Despatches, Edition of 1852, No. 10 (on Plate attached).

[3] This original, lost at Waterloo, we can of course scarcely now hope to see; and Sir De Lacy Evans's copy seems also now to have disappeared. It is not among the documents at Apsley House: Colonel Gurwood is said to have returned all MSS. to the owners; and Sir De Lacy Evans's papers have not, it is understood, been preserved. What errors may creep into printed copies of documents is well illustrated by mentioning that in Wellington's Waterloo Despatch of 19th June, 1815, as printed in the Despatches (Editions 1838 and 1852), *three* "Eagles" are said to have been captured at Waterloo, whereas "*two*" Eagles is written in the original. Also see as to this the "Notes" below the Memorandum on Plate attached.

Everything turns upon whether the word "at" (which, throughout the Memorandum, is used solely in this place) is correctly copied and printed from the original. If, for instance, the "at" was "A^t." (meaning "about") the sense of the entry is altered.

We can get, perhaps, some clue as to why the Right Column was added to the Memorandum, through Sir De Lacy Evans's statement that "the column on the right of the paper indicates the places the troops were ordered to proceed to, *at* 7 o'clock a.m." (on 16th June).

It is to be noted that the orders to proceed to places entered in the Centre Column were issued at various hours—principally on 15th June, at 5 or 10 p.m.; and only those for the 2nd Division and Cavalry (to proceed to Braine le Comte) on 16th June, at about 7 a.m. Also that all the orders to proceed to places in the Centre Column were given in Wellington's *written Instructions*, or by written Memorandum *signed by Sir W. De Lancey* (of which copies have been preserved and printed in the Despatches),[1] while we possess no written copy of any order to proceed to places entered in the Right Column, with the exception of that of the 16th June (hour not given) for the 1st Division of the Army of the Low Countries, and the Indian Brigade to move from Sotteghem to Enghien. We know that the troops did proceed towards the places entered in the Right Column; we know, from Waterloo letters, that some of the orders to do so reached the marching divisions on the line of route, brought by aides-de-camp, or mounted men, and perhaps verbally; and we have Sir De Lacy Evans's statement[2] that the troops were ordered to these places "*at 7 a.m.*," but there are no written copies of Wellington's instructions, or Sir W. De Lancey's orders in consequence of them, for the troops to proceed onward to Nivelles, Quatre Bras or Genappe on the 16th June.[3]

To draw too many inferences, as to the cause of there being two columns (centre and right) of places on the Memorandum, would not be justified; but it may, perhaps, not be unreasonable to suggest that Sir W. De Lancey may, as would have been natural, have begun his Memorandum—or précis, as we view it—by jotting down, in the Centre Column, those places to which the divisions, etc., had been directed under the Duke's Instructions and his own written orders, in pursuance of them; and that, having done this, he received, at the last moment, a batch of orders for the troops to be moved on still further to the places which he then added to the Memorandum (in the Right Column).

[1] See Ropes as to this also—p. 87 and 82.

[2] Some have viewed this statement as an error, but there is no proof that it is; and it certainly must carry weight.

[3] There *are* written orders (issued on the 16th from Genappe) for troops to proceed to Nivelles and Quatre Bras *on the 17th*, but this is quite another thing.

We must now consider the second interpretation, which the title of the Memorandum will bear. The crucial difference between this and the first interpretation, which we have already discussed is that, under this (the second interpretation) the divisions, etc., are all supposed to have reached (and not merely been directed on) the places entered in the Centre Column. This, although it involves repetition, we emphasize again, because it is upon this supposition that the Memorandum has been condemned.

We propose to take Ropes, whom we have quoted before, one of the most careful, valued, and widely-read writers upon the Waterloo Campaign, as expressing the view of many others, or it may be said, without exaggeration perhaps, the universal view, in applying the second interpretation to the Memorandum.

He writes[1]:—

"It (the Memorandum) purports, in our opinion, to be a statement by Wellington's Chief of the Staff, of the probable positions, at 7 a.m. of the 16th June, of the various divisions,[2] and of their respective destinations."[3]

Acting upon this conception he compares the real position of the troops at 7 a.m., as ascertained afterwards, with the entries in the Centre Column, in order to show the faults of the Memorandum. He points out that certain of the Divisions, etc., had not reached the positions indicated in the Centre Column, and with regard to the 5th (Picton's) Division, including the Hanoverian Brigade and the Duke of Brunswick's Corps, which all formed part of the Reserve, remarks that instead of their being "Beyond Waterloo,' they were at 7 a.m. "some six miles on the Brussels side" of it.

But Ropes, at the same time, alluding to Wellington's additional orders, issued at 10 p.m. on 15th June, says (p. 79): *"No orders were issued to the Reserves."*[4]

This makes it apparent that he had not happened to see these orders to the Reserve, detailed in the 1852 Edition of the Despatches.[5] Yet they evidently were issued—to proceed to a point along the Namur road to where "the road to Nivelles separates," *i.e.*, to "beyond Waterloo."[6]

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[1] Ropes, p. 86 *et seq*; and p. 110-115.

[2] Referring, apparently, up to this point, to the entries in the Centre Column.

[3] Referring, apparently, to the entries in the Right Column.

[4] The Italics are ours.

[5] But not, as we have before said, in the 1838 Edition. Ropes also mentions (p. 82) that no hour is given on the order to Hill of the morning of 16th June to move the 2nd Division to Braine le Comte—it is not given in the 1838 Edition, but is in that of 1852 as 7 a.m.

[6] The reason for this order seems clear, for from this point it could afterwards be moved either along the road to Nivelles, or along that towards Namur, which passes through Quatre Bras and Charleroi, as Wellington might decide.

Ropes, not being aware that the troops in Brussels, forming the Reserve, had been so directed, could not, of course, have imagined that Sir W. De Lancey had used the expression "Beyond Waterloo"—which occurs five times in the Memorandum—in any other sense than that the troops referred to were in this situation, at 7 a.m.

But as the 1852 Edition of the Despatches is evidence that they were directed to "Beyond Waterloo" in the "Additional Instructions" of 10 p.m. on 15th June, this tends materially to strengthen the first interpretation of the Memorandum which we here support.

As this 10 p.m. order was not delivered to the troops in Brussels till between 10 p.m. and midnight, and Picton's Division of the Reserve (the 5th) marched at 4 a.m. on the 16th, there is little doubt that whatever further orders they received afterwards, they left Brussels under it.

It has been thought useful to point out the differences which exist between the first and the Revised Editions of the Wellington Despatches. They have led to no little misconception as to certain details; and the present writer has more than once missed some points of interest by not consulting the latest as well as the first editions of this and other works (such as Siborne's History of the Campaign).

It is important to consult all, but not always easy. Every library does not possess the latest edition; and to those who are on the Continent, in America, or elsewhere abroad, and have not access to the British Museum Library, the difficulty of referring to the latest edition is, of course, often increased.

As a possible explanation of how it may have happened that, in what purport to be copies of the same original, but lost[1] "Instructions" for the Army, issued by Wellington on 15th, 16th, and 17th June, there are differences between the 1838 and 1852 editions of the Despatches, it may be remarked that what appears in the 1838 edition is stated to have been furnished to Colonel Gurwood by Lord Hill and certain others,

[1] It may be mentioned here that the only document in Sir W. De Lancy's possession when he was mortally wounded at Waterloo which was recovered, was a plan of the ground on which the battle was fought on the 18th June, found in the breast of his tunic, stained with his blood. This plan had been made by Colonel Carmichael Smyth, R.E., and other officers some time previously. Wellington on 17th June sent in to Brussels for it, and then indicated on it to Sir W. De Lancey by some rough pencil marks the position which he wished taken up that night. It would now be of great military interest, but cannot be found by Col. Carmichael Smyth's descendants. A lithograph of a portion of it appears in C. D. Yonge's "Life of the Duke of Wellington," published in 1860, when it was in possession of Lady Carmichael Smyth.—*See* Lady De Lancey's "A Week at Waterloo," (1906), pp. 110-112—and a tracing of the whole is preserved in the Royal United Service Institution with interesting notes on it by Major Oldfield (see p. 5, Note 3).

to whom they had been addressed, while what appears in the 1852 Edition, so far, at all events, as the 5 and 10 p.m. orders of 15th June are concerned, was furnished by Sir De Lacy Evans, who was with Sir W. De Lancey when they were issued.

The Reserve was under Wellington's direct command, which may account for Lord Hill, in the copy sent, not having preserved the orders to it, while Sir De Lacy Evans preserved a fuller copy of the entire paper. This, of course, however, is conjecture only.

The view that the De Lancey Memorandum is but a hurried précis of Wellington's directions to the Army, up to 7 a.m. on 16th June inclusive, is strengthened by a consideration of the moment when the paper was put together. Would Sir W. De Lancey have been very likely, under the situation at that hour prevailing in Brussels, to have calculated marches and distances of the various divisions? Yet without doing this he could not hope to indicate even roughly in the Centre Column the precise positions which those divisions had reached.

He might have done so certainly, but it must be remembered that orders had been going out at intervals during the preceding afternoon and night till midnight; that the more distant columns were far off, and that orderlies reaching them would in several instances hardly have returned, by 7 a.m., to report the hour of their delivery.[1]

Is it not as, or even more, likely that Wellington, before setting out for the field from Brussels, should have asked for a brief précis, in form convenient to refer to, of how the army had been directed, and was therefore moving, under his orders up to that time? Or, had he not himself asked for it, that Sir W. De Lancey should have put it together for him?

Further, what is less likely, in reality, than that Sir W. De Lancey, a Staff Officer of long Peninsular experience under Wellington, should compile a palpably incorrect and misleading paper for his Chief.

In forming his Head-Quarter Staff for the Waterloo campaign, Wellington had selected Sir W. De Lancey for the post of Deputy Quartermaster-General, which was practically that of Chief of his Staff. Though young for this post (about 35 years of age), he had served for ten years in the Quartermaster-General's Department; and from Corunna to Toulouse had distinguished himself in the field. He was not one of the untrained officers of Wellington's Staff.

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[1] Serious delays occurred in the delivery of some of the orders. For instance, the order to the 2nd Division to march from Ath was not delivered to Hill, who had gone to Grammont, before 3 a.m. on the 16th and one of his regiments (the 52nd) received theirs at 10 a.m.

Sir Augustus Fraser writes[1] of him, after Waterloo:—

"This is our greatest loss—none can be greater, public or private"; and Wellington:—"This officer is a serious loss to His Majesty's service, and to me at this moment."[2]

We have now, perhaps even in somewhat tedious detail, put forward what has led us to think that this Memorandum, by Sir W. De Lancey, was drawn up merely as a *précis*, not of the places which the troops had necessarily reached, in any case, but of those they had been directed to in Wellington's Instructions.

If this conception of the intention of its compiler is correct, then the idea that the paper is incorrect and misleading falls to the ground; for, as a précis of orders, and especially under the circumstances in which it was hastily jotted down, it both fulfils its purpose and is terse, comprehensive, and complete.

In case the interpretation of it now suggested should appear too simple, we know that occasionally what may have seemed cryptic is the reverse, and that, as in the instance of the inscription upon the ancient stone, which caused the celebrated controversy among the members of the Pickwick Club,[3] its solution may be a very ordinary one.

Let us now consider the question of whether it is probable that Wellington turned to this Memorandum before writing his letter to Blücher, and that its entries misled him.

Of course, if he understood the Memorandum to be but a précis of where the troops had been directed, and the Centre Column not to imply that they had by 7 a.m. reached the places entered in it, then there was nothing misleading to him in the paper, for it was a practically correct summary.

But let us suppose that he did not so understand it, and could have taken the Centre Column to indicate that the troops had reached the places entered in it; and, under this supposition, compare Wellington's letter with the Memorandum.

The letter, translated from the French, in which it was written, runs thus:—

Upon the heights behind Frasne,
June 16th, 1815, at half-past ten.

MY DEAR PRINCE,

My army is situated as follows. Of the Corps of the Prince of Orange, one Division is here, and at Quatre Bras, the remainder at Nivelles. The Reserve is on the march from Waterloo to Genappe, where it will arrive at noon. The English Cavalry will be at the same hour at Nivelles. Lord Hill's Corps is at Braine le Comte.

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[1] Letters of Sir Augustus Fraser (who commanded the Horse Artillery at Waterloo).

[2] Wellington Despatches, Edition of 1852, Vol. VIII., p. 150.

[3] Papers of the Pickwick Club, by Charles Dickens, Vol. I., p. 166 *et seq.*

I do not see any great force of the enemy in front of us; and I await news of Your Highness, and the arrival of troops, to decide upon my operations for the day.

Nothing has appeared in the direction of Binche, nor on our right.

Your very obedient servant,

WELLINGTON.

The first statement in the letter is:—

"The Corps d'Armée of the Prince of Orange has a Division here and at Quatre Bras, and the remainder at Nivelles."

So far the letter is in agreement with the Memorandum; but Wellington had reached Quatre Bras himself at about 10 a.m., half-an-hour or so before he wrote to Blücher; and the Prince of Orange, who commanded the Corps referred to, had been there for several hours,[1] and Wellington is said to have joined him there, inspected his position, and presumably conferred personally with him, or his staff.

Why should it be supposed that he took his information as to this Corps at 10 a.m. from a Memorandum compiled in Brussels shortly after 7 a.m., when he could see what troops were in and about Quatre Bras (stated correctly in his letter) with his own eyes; and, as far as the remainder of the Corps[2] is concerned, which was marching towards Nivelles, could obtain later and surer information as to when they might possibly reach that point, from the Commander of that Corps or his Staff?

The next statement is:—

"The Reserve is on the march from Waterloo to Genappe, where it will arrive at noon."

Wellington had ridden past the Reserve, on his way to Quatre Bras, probably about 9 a.m.[3] He knew exactly where they had been at that hour. Why should he turn to a Memorandum written soon after 7 a.m. for his information as to the Reserve?[4]

The next statement is:—

"The English Cavalry will be at the same hour (*i.e.*, at noon) at Nivelles." In the Memorandum "Braine le Comte" is placed in the Centre Column with reference to the "Remainder," *i.e.*, the bulk of, the Cavalry (Dörnberg's Brigade and the Cumberland Hussars having been already dealt with).

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[1] Ropes, p. 106. Hooper, p. 101. Sir Herbert Maxwell's "Life of Wellington," Vol. II. pp. 16-19.

[2] The 3rd Division of the Army of the Low Countries; and the 1st and 2nd Divisions (British and Hanoverians).

[3] Waterloo Letters, pp. 23, 357, 385; and Historical Records of the 79th Highlanders; (see Ropes also, p. 107, on this head).

[4] The Reserve, by some mistake, remained halted near Waterloo longer than he had intended, or it would have been at Quatre Bras earlier.

FROM
WELLINGTON DESPATCHES (Gurwood).
Edition of **1838.** Vol. XII., pages 472-3.

MEMORANDUM FOR THE DEPUTY QUARTER MASTER GENERAL.

MOVEMENTS OF THE ARMY.

BRUXELLES, 15th of June, 1815.

General Dörnberg's Brigade of Cavalry and the Cumberland Hussars to march this night upon Vilvorde, and to bivouac on the high road, near to that town.

The Earl of Uxbridge will be pleased to collect the Cavalry this night at Ninhove, leaving the 2nd Hussars looking out between the Scheldt and the Lys.

The 1st Division of Infantry to collect this night at Ath and adjacents, and to be in readiness to move at a moment's notice.

The 3rd Division to collect this night at Braine-le-Comte, and to be in readiness to move at the shortest notice.

The 4th Division to be collected this night at Grammont, with the exception of the troops beyond the Scheldt which are to be moved to Audenarde.

The 5th Division, the 81st Regt., and the Hanoverian Brigade of the 6th Division, to be in readiness to march from Bruxelles at a moment's notice.

The Duke of Brunswick's Corps to collect this night on the high road between Bruxelles and Vilvorde.

The Nassau Troops to collect at daylight to-morrow morning on the Louvain road, and to be in readiness to move at a moment's notice.

The Hanoverian Brigade of the 5th Division to collect this night at Hal, and to be in readiness at daylight to-morrow morning to move towards Bruxelles, and to halt on the high road between Alost and Assche for further orders.

The Prince of Orange is requested to collect at Nivelles, the 2nd and 3rd Divisions of the Army of the Low Countries; and should that point have been attacked this day, to move the 3rd Division of British Infantry upon Nivelles as soon as collected.

This movement is not to take place until it is quite certain that the enemy is upon the right of the Prussian Army, and the left of the British Army.

Lord Hill will be so good as to order Prince Frederick of Orange to occupy Audenarde with 500 men, and to collect the 1st Division of the Army of the Low Countries, and the Indian Brigade at Sotteghem, so as to be ready to march in the morning at daylight.

The Reserve Artillery to be in readiness to move at daylight.

WELLINGTON.

MOVEMENT OF THE ARMY.

AFTER ORDERS 10 O'CLOCK P.M.

BRUXELLES, 15th of June, 1815.

The 3rd Division of Infantry to continue its movement from Braine-le-Comte upon Nivelles.

The 1st Division to move from Enghien upon Braine-le-Comte.

The 2nd and 4th Divisions of Infantry to move from Ath and Grammont, also from Audenarde, and to continue their movement upon Enghien.

The Cavalry to continue its movement from Ninhove upon Enghien.

The above movements to take place with as little delay as possible.

WELLINGTON.

INSTRUCTIONS FOR THE MOVEMENT OF THE ARMY ON JUNE 16TH.* SIGNED BY COLONEL SIR W. DE LANCEY, DEPUTY QUARTER-MASTER GENERAL.

June 16, 1815.

To General Lord HILL, G.C.B.

[*See under Edition of* 1852.]

These orders correspond exactly to those given in the Edition of 1852 (shown to the right on this plate) so are not here repeated, but no hour is mentioned on the order, whereas 7 a.m. is mentioned in the Edition of 1852.

The order also to Major-General Sir J. Lambert, 16th June, 1815, corresponds with that given in the Edition of 1852.

[*See last note on right column of this plate.*]

* A note to the Edition of 1838 says: "The original instructions issued to Colonel De Lancey were lost with that Officer's papers. These Memorandums of Movements have been collected from the different officers to whom they were addressed."

De Lan

DISPOSITION

1st Division .

2nd „ .

3rd „ .

4th „ .

5th „ .

6th „ .

5th Hanoverian Bri

4th „

2nd Division { Army
3rd „ { Cour

1st Division } Indian Brigade }

Major-General Dörn Brigade and Cu land Hussars

Remainder of the c

Duke of Brunswick's

Nassau Corps .

The above dispos commander of the f column of names i arrived, or were mo indicates the place o'clock a.m., June 1

* Given in *Wellington* *Wellington Despatches* (Ed.

A comparison of p.m. on the 15th Jun of the Despatches (a and as they are give of the above Memo

Those we desire m the above Memoran

1. In the 183 2nd Division. printer (see Or inadvertently sh to after "2nd D

2. In the 1838 whatever appe "Additional Ins

3. In the 183 of the 5th Divi mention of this

4. Also, in the 2nd Division to issue on it. In t

* Col. James points this

THE De Lancey Memorandum.

DISPOSITION OF THE ARMY AT 7 O'CLOCK A.M., JUNE 16TH.*

Division	Braine-le-Comte.	Marching to Nivelles and Quatre Bras.
"	"	" to Nivelles.
"	Nivelles	" to Quatre Bras.
"	Audenarde	" to Braine-le-Comte.
"	Beyond Waterloo	" to Genappe.
"	Assche	" to Genappe and Quatre Bras.
Hanoverian Brigade	Hal	" to Genappe and Quatre Bras.
" "	Beyond Waterloo	" to Genappe and Quatre Bras.
Division "	Army of the Low Countries	At Nivelles and Quatre Bras.
Division an igade	"	Sotteghem, marching to Enghien.
r-General Dörnberg's igade and Cumber- d Hussars	Beyond Waterloo	Marching to Genappe and Quatre Bras.
ainder of the cavalry	Braine-le-Comte.	Marching to Nivelles and Quatre Bras.
of Brunswick's Corps	Beyond Waterloo	Marching to Genappe.
au Corps	" "	" "

e above disposition written out for the information of the nander of the forces by Colonel Sir W. De Lancey. The centre nn of names indicates the places at which the troops had ed, or were moving on. The column on the right of the paper ates the places the troops were ordered to proceed to at 7 k a.m., June 16th, previous to any attack on the British.

(*Signed*) DE LACY EVANS.

iven in *Wellington Despatches* (Ed. 1852), vol. viii. p. 143; and in the *Supplementary ton Despatches* (Ed. 1863), vol. x., p. 496.

NOTES.

comparison of Wellington's Instructions, issued at 5 and 10 on the 15th June, 1815, as they are given in the 1838 Edition e Despatches (and here on the left of the above Memorandum); s they are given in the 1852 Edition (and here on the right e above Memorandum) show various differences.

se we desire more especially to draw attention to, as affecting ove Memorandum, are:

1. In the 1838 Edition no order appears as given to the d Division. This may have arisen from the copyist or rinter (see Orders No. 3 and 4 of the 1852 Edition) having advertently skipped the words* from after "1st Division" after "2nd Division."

2. In the 1838 "After Orders," 10 p.m., 15th June, no orders hatever appear as given to the Reserve; in the 1852 Additional Instructions," 10 p.m., they are given in detail.

3. In the 1838 Edition the Hanoverian Brigade (5th Bde.) the 5th Division appears as ordered to collect at Hal. No ention of this occurs in the 1852 Edition.

4. Also, in the 1838 Edition, the Order to Hill to move the d Division to Braine-le-Comte (June 16th) has no hour of ue on it. In the 1852 Edition the hour is given (7 a.m.)

James points this out in "The Campaign of 1815 chiefly in Flanders" (1908.)

FROM
WELLINGTON DESPATCHES (Gurwood). Edition of 1852. Pages 142-3.

*INSTRUCTIONS FOR COL. SIR W. DE LANCEY, THE D.Q.M.G., TO BE SENT FORTHWITH TO LT.-GEN. LORD HILL, THE PRINCE OF ORANGE, AND THE EARL OF UXBRIDGE.

BRUSSELS, 15th June, 1815, 5 p.m.

1. Gen. Dörnberg's Brigade and the Cumberland Hussars to march this night upon Vilvorde.

2. Lord Uxbridge to collect his Cavalry *this night* upon Ninove, leaving the 2nd Hussars looking out between the Scheldt and the Lys.

3. The 1st Division to remain as they are at Enghien, and all in readiness to march at a moment's notice.

4. The 2nd Division to collect this night at Ath and adjacents, and to be in readiness to march at a moment's notice.

5. The 3rd Division at Braine-le-Comte, the same.

6. The 4th Division to be collected at Grammont, with the exception of the troops beyond the Scheldt, which are to be brought to Audenarde.

7. The 5th and 6th Divisions in readiness at a moment's notice.

8. The Brigade at Ghent to march to Brussels in the evening.

9. The Duke of Brunswick to collect to-night on the high road from Bruxelles to Vilvorde, the Nassau troops on the Louvain road, and both ready to march in the morning.

10. The Prince of Orange, who is now at Alava's, to be directed to collect at Nivelles the 2nd and 3rd Divisions of the Army of the Low Countries; and in case that point should have been attacked this day, to move the 3rd Division and 1st Division upon Nivelles as soon as collected. This movement not to take place until it is quite certain that the enemy's attack is upon the Prussian right, or our left.

11. Lord Hill to be directed to order Prince Frederick of Orange to occupy Audenarde with 500 men, and to collect the 1st Division of the Army of the Low Countries and the Indian Brigade at Sotteghem, so as to be ready to march in the morning at daylight.

12. The Reserve Artillery, etc., is to be in readiness to move at daylight.

Additional Instructions.

Issued 15th June, 1815, 10 p.m.

The troops in Bruxelles (5th and 6th Divisions, Duke of Brunswick's, and Nassau troops) to march, when assembled, from Bruxelles by the road of Namur to the point where the road to Nivelles separates; to be followed by Gen. Dörnberg's Brigade, and the Cumberland Hussars.

The 3rd Division to move from Braine-le-Comte upon Nivelles.

The 1st Division from Enghien upon Braine-le-Comte.

The 2nd and 4th Divisions upon Enghien from Ath and Grammont, also from Audenarde, and to continue their movement upon Enghien. The Cavalry upon Enghien from Ninove.

* These Instructions for the Movement of the Army were issued at 5 p.m. on the 15th June, two hours after the Duke of Wellington received the intelligence that the French army had attacked the Prussian and Belgian posts on the Sambre and taken Charleroi. The original Instructions of the 15th, 16th and 17th June, in the handwriting of the Duke of Wellington, for Colonel De Lancey, D.Q.M.G., were lost, with the papers of that officer, after his death. Original copies, however, preserved by Colonel Sir De Lacy Evans, who was with Colonel De Lancey when they were issued and despatched to the different Corps of the Army, have been handed by Sir De Lacy Evans to the compiler. The Memorandum of movements detailed by the D.Q.M.G. to the officers in command of Corps and Divisions have been compared, and are in conformity, with the Instructions contained in the original copies.

INSTRUCTIONS FOR THE MOVEMENT OF THE ARMY ON THE 16TH. SIGNED BY COLONEL SIR W. DE LANCEY, D.Q.M.G.

16th June, 1815, 7 a.m.

To Gen. Lord HILL, G.C.B.

The Duke of Wellington requests that you will move the 2nd Division of Infantry upon Braine-le-Comte immediately. The Cavalry has been ordered likewise on Braine-le-Comte. His Grace is going to Waterloo.

16th June, 1815.

Your Lordship is requested to order Prince Frederick of Orange to move immediately upon receipt of this order the 1st Division of the Army of the Low Countries and the Indian Brigade from Sotteghem to Enghien, leaving 500 men, as before directed, in Audenarde.†

† AUTHOR'S NOTE.—The above are all the orders given which relate to movements *to be made on June 16th.* Other orders were issued on the 16th for movements *on the 17th*, and of these are given the following as it is referred to in the Text:

16 June, 1815.

To Major-Gen. Sir J. LAMBERT, K.C.B.

The Brigade of Infantry under the command of Major-Gen. Sir J. Lambert to march from Assche at daybreak to-morrow morning, the 17th inst., to Genappe on the Namur road, and to remain there until further orders.

C. W. R.

Now, had Wellington turned to this Memorandum and imagined that the entry "Braine le Comte" implied that the remainder of the Cavalry had arrived there at 7 a.m., how could he possibly have written that it would not reach Nivelles till noon? This would be a calculation that it would take 5 hours to reach Nivelles from Braine le Comte (10 miles).

The last statement is:—

"Lord Hill's Corps is at Braine le Comte."

As to this Corps, however, "Braine le Comte" is placed in the centre column with reference to the 2nd Division only, "Audenarde," not Braine le Comte, being placed with reference to the 4th Division, and "Sotteghem," not Braine le Comte, with reference to the 1st Dutch Belgian Division and the Indian Brigade. As to this Corps, as Ropes has observed,[1] Wellington could *not* have consulted the Memorandum.

Had he gone by it, and understood from it that the 4th Division had been at Audenarde at 7 a.m., and the 1st Dutch Belgian Division and the Indian Brigade at Sotteghem, then his statement that they were at Braine le Comte when he wrote (at 10.30 a.m.) would have been equivalent to a calculation that Infantry could march from 25 to 30 miles in 3½ hours.

The above considerations not only tend to confirm the impression that the places entered in the centre column of the Memorandum were merely those to which the divisions had been directed, and not which they had reached; but further to show that the Memorandum in whatever light we look at it, *i.e.*, whether interpreted either as a précis of orders simply, or in its hitherto accepted light, could scarcely have misled Wellington, or influenced him, to any extent whatever, in his letter to Blücher.

Wellington, when he wrote that letter, undoubtedly expected the Army to be more advanced than it was. Delays which had occurred in the delivery of his orders, sent out from Brussels in many cases after dark; delays in the troops getting off upon the march; and delays by the overcrowding and blocking of the roads along the line of route, all tended, it may be fairly assumed, to mislead him and others also as to the exact position of portions of the army at 10.30 a.m. In alluding to Hill's Corps he probably never meant to imply that those portions beyond the Scheldt could have been at Braine le Comte at that hour—the distance entirely precluding the possibility of that.

These questions, however, are apart from the purpose, the correctness, or the effect, of the "De Lancey Memorandum," to which we confine ourselves here.

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[1] He writes (p. 180) "The Duke had not the authority of the 'Disposition' for the statement made in his letter, as to these portions of Lord Hill's Corps"—by "these portions" meaning portions other than the 2nd Division.

THE TRAINING OF THE R.E. FIELD COMPANIES OF A DIVISION.

By Bt.-Colonel R. U. H. BUCKLAND, R.E., A.D.C.

THE fact that the Manual entitled "Royal Engineers Training, 1907," offers no guidance on the above subject, may make it difficult for officers of other branches of the Service, and R.E. officers who have not served in such units, to obtain clear and definite ideas as to the tactical employment of the R.E. Field Companies of a Division, and the manner in which their technical skill can best be used to facilitate the action of the other arms. This difficulty is, of course, accentuated in the case of Territorial officers, as their Field Companies are of quite recent formation, and their opportunities of working in Division are limited.

In the absence of any authoritative treatise dealing with the matter in hand, it may perhaps be pardoned if an individual officer, who has served in more than one Field Company, should put forward his views for what they are worth, without any wish on his part to lay down hard and fast rules.

Before attempting to evolve a system of training for the officers, non-commissioned officers and men of the R.E. Field Companies of a Division, it is necessary to consider their organization, and the duties that they will be called upon to carry out in time of war.

The Royal Engineers allotted to a Division consist of two Field Companies and one Divisional Telegraph Company. They are commanded by the C.R.E. (a Lieutenant-Colonel), who is assisted by an Adjutant.

The Telegraph Company has its own special training, which it is not proposed to discuss here.

Each Field Company is commanded by a Major, and consists of headquarters and four sections, each of the sections being under a subaltern. The personnel is as follows:—

Officers.	Staff Serjs. and Serjs.		Artificers.	Trumpeter and Bugler.		Rank & File.		Total.		Horses.				Vehicles.				
	Mounted.	Dismounted.	Mounted.	Mounted.	Dismounted.	Mounted.	Dismounted.	Mounted.	Dismounted.	Riding.	Draft.	Pack.	Total.	Pontoon and trestle.	G. S. Wagons.	Double tool Carts.	Forage Carts.	Water Carts.
6	2	6	1	1	1	45	150	55	157	16	51	4	71	3	1	4	4	1

The men are recruited almost entirely from the artisan class, and comprise the following trades: carpenters, masons, bricklayers, plasterers, slaters, blacksmiths, whitesmiths, tinsmiths, shoeing smiths, fitters and turners, engine drivers, gas fitters, wheelwrights, coopers, painters, plumbers, collarmakers and saddlers, shoemakers, printers, clerks, surveyors, draftsmen, tailors and telegraphists. The tools necessary for each of these trades are carried in the vehicles enumerated in the table above, as also are explosives, pumps, water troughs, rope, and various small stores. The bridging equipment includes two pontoons and two trestles, with super-structure sufficient to make 20 yards of medium bridge.[1] All the vehicles, except the water cart, are 1st Line Transport, but the wagons carrying bridging equipment will march with the 2nd Line Transport if not likely to be required during the day. A section when detached takes with it one double tool cart and one forage cart, which, in addition to equipment and stores, carry rations for men and horses, so that it is complete in itself, and can move at any time independently of the company.

The duties which the R.E. Field Companies of a Division will be called upon to perform on service are extremely varied, and may best be enumerated under separate headings, taking the various situations in which the Division may be placed.

1. *The Division disembarking at a Base oversea:*

(*a*) The R.E. will prepare or improve landing facilities.
(*b*) Prepare camps, depôts, etc., at the Base.
(*c*) Assist in the preparation of the defences of the Base.

All this work will be taken over by the Line of Communication Company R.E. on its arrival.

2. *The Division on the march.*

[1] This may be increased to 25 yards if the ribbands are used as baulks, or a light bridge 75 yards in length may be made, which will carry infantry in file.

One Field Company R.E. will usually be allotted to the Advanced Guard.

(*a*) Reconnaissance:[1] (1) General; the reconnaissance of rivers, towns, villages, and localities with a view to keeping the C.R.E. informed of their tactical possibilities from the R.E. point of view, and of the resources of the country in workshops, material, tools, and civilian workmen. (2) Particular: for Advanced Guard purposes R.E. officers will be sent on well ahead of their men to see what work will be required during the day to facilitate the march of the Army. They will also have to reconnoitre roads, paths, and tracks for leading their men to work, especially at night.

(*b*) The R.E. in the Advanced Guard will clear roads, and remove obstacles such as felled trees, or the debris of destroyed overbridges.

(*c*) Make, or repair, bridges, culverts, etc.

(*d*) Improve roads, making new roads if necessary.

(*e*) Mark fords, and improve means of access to them.

(*f*) As soon as the Advanced Guard is committed to an engagement the duties of the R.E. will be as in 4 or 5, *vide infra*.

3. *The Division halted.*

(*a*) An officer of the R.E. will have accompanied the Staff Officer who was sent on to select the camp or bivouac. He will prepare the scheme of water supply, and set up the flags prescribed by regulation.

(*b*) The R.E. will improve the means of ingress to, and egress from camping grounds and watering places.

(*c*) Assist in strengthening the outpost position, if required.

(*d*) Execute reconnaissances preparatory to the advance being resumed.

(*e*) Overhaul equipment, sharpen cutting tools, repoint picks, etc.

4. *The Division in attack.*

(*a*) R.E. officers and non-commissioned officers will assist in the reconnaissance of the enemy's position to

[1] In this connection, see an admirable article entitled "Engineer Scouting and Reconnaissance," by Major F. E. G. Skey, R.E., published in the "Royal Engineers' Journal," November, 1908.

ascertain the character of his defensive works, and obstacles, and their extent.

(*b*) The Companies will be allotted to the Brigades in the front line of the attack, and will deal with obstacles, and assist in preparing for defence captured posts, or localities required to be held as supporting points, also the enemy's main position when won. As the Brigade Staffs will be busily engaged, it must be recognised that the R.E. will have to act on their own initiative in accordance with the known intentions of their Brigadiers, and not wait for orders.

(*c*) If any R.E. can be spared from the front line they will be used to open up or improve existing communications, so as to facilitate the movements of formed bodies of infantry, or massed guns, as required by the scheme of attack, but they must be pushed on to rejoin their companies as soon as this work has been accomplished.

5. *The Division on the defensive.*

(*a*) Reconnaissance. The C.R.E. will accompany the G.O.C. during his reconnaissance of the position he intends to hold, or may be required by the G.O.C. to make this reconnaissance for him, and submit a scheme of defence.

(*b*) The R.E., working in conjunction with the infantry, will construct those portions of defensive works which require technical skill or special tools. They may also be called upon to construct obstacles, to help in clearing the field of fire, to improve communications (which may necessitate bridging), to lay land mines, to build observatories,[1] or to assist in placing villages or woods in a state of defence.

(*c*) The R.E. must be prepared to assume complete responsibility for placing a position in a state of defence if it is so ordered, working parties, as required, being placed at their disposal. They must at all times bring to the notice of the higher Commanders any want of co-ordination or mutual support in defensive works executed by the infantry, and must have ready their suggestions as to how such faulty dispositions may be rectified.

(*d*) The R.E. will organize and supervise any local civilian labour that may be available for working parties.

[1] Great importance is attached to observatories in the French Army.

6. *The Division in retreat.*

(*a*) The R.E. may be called upon to select and entrench positions for covering the retirement, or a position further to the rear on which the Division will ultimately fall back. In either case working parties would be put at their disposal.

(*b*) R.E. will be sent on in advance to prepare bridges for destruction, if instructions to this effect have been received from Army Headquarters.

(*c*) They will also improve roads and make such new ones as may be necessary to avoid any possible block to traffic.

(*d*) R.E. with the rear guard will temporarily block roads as required to delay pursuit.

(*e*) R.E. with the rear party will destroy bridges (prepared as in (*a*)) if that is ordered from Army Headquarters.

It is to be observed that whilst always keeping one eye on the tactical situation, and thinking continually about the work which his company has been, or is likely to be, ordered to carry out, the officer commanding a Field Company has to perform all the routine and administrative duties of his unit, such as receiving and issuing orders, arranging for the daily camp or bivouac of his men, and the rations of his men and horses, whilst he has also to be continually taking steps to keep his extensive technical equipment complete and in serviceable order.[1] He has, in addition, to look after the clothing and personal equipment of his men, as he is his own quartermaster

In order to secure the proper combination of all arms, it is important to bear in mind that all work carried out by the R.E. must be subservient to the tactical requirements of the moment, and in accordance with the orders of the Commander of the force of which they form part. This Commander, who may be the G.O.C. of the Division, or a Brigadier, or the O.C. of a detached force, will acquaint the senior R.E. officer under his command (the C.R.E. in the case of a Division) with his views of the situation, his intentions, and the assistance which he requires of the R.E. This must be done early—the previous night if possible—so as to give the R.E. time to look round and make any preparations that may be necessary. The C.R.E. is then responsible that his men carry out what is

[1] Pickaxes require to be steeled and pointed, boring bars, cold chisels, carpenters' tools, felling axes, hand axes, and bill-hooks to be sharpened, saws to be set, bridging material to be overhauled, pontoons to be repaired and made watertight, ropes to be spliced after cutting out frayed portions, and new handles to be fitted to shovels. All this must constantly be seen to, and it is impossible to do it on marching days.

required. It is moreover his duty to offer suggestions to the G.O.C. as to the utilisation of the R.E., and if at any time he is separated from his General he will act on his own initiative in carrying out any work necessary for the furtherance of that officer's intentions. As the situation is for ever changing, and the G.O.C. may have to modify his plans, it is evident that the C.R.E. should, as a rule, be at his side, and arrange for the rapid transmission of his orders to his company officers, and for similar reasons it is very desirable that the R.E. should encamp or bivouac in close proximity to headquarters.

Time being usually an important factor in carrying out the work required of the R.E., it is essential that the C.R.E. should receive the very earliest information of work that has to be done and of its attendant difficulties. During an advance his officers must, therefore, be pushed on well ahead of their men, to see for themselves what useful work can be undertaken, so that they may have time to think out the best way of dealing with any difficult problem before the sappers reach the spot. In certain cases it may be convenient to send the R.E. on ahead of the column with a special escort, to prevent any delay to a large body of troops on the march.

The time required for planning any engineering work and taking stock of the material available on the spot, or finding out the nearest locality from which it may be brought, is seldom fully realised. Commanders are apt to think that work can be commenced the very moment they order it.

The necessity at all times for reconnaissance by R.E. officers must be borne in mind. This is necessary in order that the C.R.E. may be in a position to judge of the possibility of carrying out any engineering work on which the G.O.C. may wish to base his plans, and able to say how long such work will take. For instance, if the Division is marching parallel to a river, every possible means of crossing and every site suitable for bridging must be ascertained and reported to the C.R.E. by his officers, with a statement of the material available on the spot, and the time it would take to build a bridge or organise a ferry. This information will be required by the G.O.C. if at any time he has to consider its bearing on his plans, whether as to crossing it himself or denying its points of crossing to the enemy. Similarly the C.R.E. must ascertain through his officers the suitability of any village, wood, or locality for defence, the possibility of utilising any railway station for the entraining or detraining of troops, and the time that the necessary work in each case will take. He must also keep himself informed as regards the water supply of every town, district, etc., on the line of march, the amount of material suitable for R.E. purposes on which he can lay his hand in any direction, the machinery, workshops, and tools available, and the number of the inhabitants who could be called out to work. These are all points on which the G.O.C.

may question him at any moment, and require an immediate reply.

Having thus made a cursory survey of the work which will be required of the R.E. with a Division in the field, we may consider how they may best be trained in peace.

I.—Training of Officers.

(1) *Summer.*

All officers will take part in the instruction of the N.C.O.'s and sappers of their companies during their Summer Training, but their presence with their men during the whole time that the latter are at work is neither necessary nor desirable. They must learn to exercise forethought, and practise giving to their N.C.O.'s such distinct orders that their presence can be dispensed with, and the N.C.O.'s will thus learn to exercise their own judgment as to detail and to assume responsibility.

Officers must be continually practised in carrying out schemes, working by day and by night under conditions approaching as nearly as possible to those of active service. When training apart from other arms, all their work should be done in accordance with the supposed operations of a fictitious body of troops. It is possible that a single General Idea may suffice for the whole period of training, but it will probably be necessary to issue a new Special Idea from day to day. It must be recognised that, as the companies form part of a Divisional Organisation, larger bodies of troops must be brought into the schemes set for junior R.E. officers than are necessary for schemes prepared for the instruction of officers of like rank in other branches. The C.R.E. as a Lieut.-Colonel will be dealing direct with the Major-General in command of the Division, the Company Commanders will often be similarly dealing direct with any Brigadier under whose orders they may be placed, and a subaltern in command of a section may find himself taking orders direct from a Battalion Commander, and being consulted as to what he can accomplish in a given space of time with the men and tools at his disposal. It is necessary, therefore, that the subaltern officers should study the tactics of Battalions and Brigades, and their requirements on the march, in camp, in attack, or in defence.

R.E. Officers on first joining at Chatham pass through a very complete course of instruction, but without practice the hand soon loses its cunning, and it is only by constant practice that the most rapid execution of work can be ensured. This applies more particularly to the art of military sketching, both in respect to the enlargement of small scale maps for tactical purposes, and the delineation of hill features on maps of small scale.

Schemes suitable for the instruction of R.E. officers will include such subjects as:—

1. Advanced Guard and Rear Guard work on a given length of road, dealing with the work pointed out by the officer setting the scheme.
2. Camping arrangements for a Brigade of Infantry, a Brigade of Artillery, and other units.
3. The strengthening of an outpost position likely to be held for a considerable time, as in siege warfare.[1]
4. Preparing a position for defence under varied conditions, calculating working parties, and using only such material as is available on the spot.
5. The utilization of a Company R.E. attached to a Brigade carrying out an attack over a selected piece of ground. This may be varied by supposing the success or failure of the attack.
6. The utilization of a company R.E. in a section of the attack of a fortress, preparation of field depôts, workshops, etc.
7. The defence of a post on the Line of Communications, or of a section of the outer defences of a fortress.
8. Improving facilities for disembarkation at a seaside town, or landing facilities on a beach.
9. Improvising platforms at a railway junction, or between stations for entraining and detraining a given force.
10. Selection of sites for river crossings, and designing bridges of all kinds.

The value of work of this nature will depend very much upon its being subjected to criticism as soon as it has been done, on the ground if possible. The work for subaltern officers will be set by the Company Commanders, that for the senior officers will be prepared by the C.R.E., who, in his turn, will work out schemes set by the General Staff Officer of the Division. Constant practice is necessary, and every scheme will be criticised by the officer who set it, and submitted with his criticisms to the next higher authority.

It is necessary here to point out how important it is that all officers should read military history and current military literature in order to keep their knowledge up-to-date, especially criticisms of, and deductions drawn from recent campaigns. The R.E. Corps Library, from which books may be obtained on loan carriage free, contains almost all the old and new mili-

[1] Exercises in siege warfare are useful as, owing to the time available, field entrenchments can be developed to their utmost limit, whereas in field operations it is usually a question of how much can be done in a short time.

tary works of importance, and the Committee are ever ready to purchase new works which are recommended to their notice. It is a great advantage to officers to become members of the Royal United Service Institution, where they have the use of the finest military library in the kingdom, and can hear lectures and discussions on all the most interesting naval and military topics of the day, whilst they can study at their leisure the excellent articles, essays, and reviews of books in the Journal of the Institution. For those who can read foreign languages there are always new books and pamphlets by writers of European celebrity, and the Engineer text books of foreign armies are well worth studying. Such books as "Ponts Improvisés," by G. Espitallier and F. Durand, and Klein's "Le rôle du Génie en Campagne," should be familiar to all R.E. officers.

(2) *Winter.*

The most important part of the training of R.E. officers during the winter is that which tends to improve their qualifications as engineers. In the field, when the Army is at rest, work of various kinds will have to be done. Buildings will have to be adapted for the use of the troops as barracks, hospitals, stables, offices, or stores, and bridges of a semi-permanent nature may have to be built. Nor is it difficult to imagine circumstances in which it might be necessary, in a hostile or disaffected country, to exercise control over large municipal works, of which it was desired to enjoy the benefit, but which the inhabitants could not be trusted to manage without responsible supervision. Thus R.E. officers might finds themselves placed in charge of water works, gas or electric light works, power stations, sewage disposal works, or large workshops, and obliged to run them with the local workmen, superintended (and watched if necessary) by the N.C.O.'s and sappers of their companies.

Every officer must, therefore, be called upon to visit, not only W.D. works in course of construction within easy distance from his station, but also large municipal or engineering works in his neighbourhood, so that he may become acquainted with the latest inventions and practice in all branches of his profession. Reports on works visited, and sketches of important details, should be made in a suitable book, and submitted at the end of the winter season to the C.R.E., who is responsible for the training of his officers for war as much in this respect as in any other. Young officers will seldom take sufficient interest in constructional work to seize of their own accord opportunities for increasing their stock of knowledge, but they will quickly recognise its importance if they see their seniors taking advantage of all such chances that come in their way. There is hardly any work which falls to the lot of the R.E. officer on service in which a knowledge of building construction and the

economical use of material is not essential, and it is, therefore, of great importance to ensure that young officers should have to organize and supervise the work of the men of their companies, whenever the latter are employed on the Public Works.

Field training, however, must not be neglected. Riding drills in the school, and over jumps in the open, are necessary for all officers, and they should seize every opportunity of increasing their veterinary knowledge. Schemes may be carried out as in summer, with winter conditions imposed, but most work of this nature is best done during the summer months. It is during the winter months that night work, so essential under modern conditions of war, can best be practised, as it may be carried out during the long evenings without interfering with the men's ordinary hours of sleep. It is quite possible, however, to exercise officers in night leading without having out any men: all that is required is a tactical scheme involving a concentration march from a number of given points, but a very dark cloudy night must be chosen, or the practice is worth nothing.

Senior officers will attend any Divisional or Brigade Staff Tours that take place, and the subalterns will take part in the Company Tours, arranged by the Company Commanders, to which reference is made below.

II.—N.C.O.'s and Men.

(1) *Summer.*

The Summer Training of the N.C.O.'s and sappers will usually commence in the month of March with a "refreshing course" of drill, followed by musketry. The riding of the mounted men will be improved by a short period in the school and over a jumping course in the open. Driving must be practised over all sorts of ground, and the mounted N.C.O.'s will be instructed in map reading and in finding their way across country by day and by night. A few of the draft horses should be trained for pack work, as they will be required for that purpose on mobilisation, and both sappers and drivers can practise making up and adjusting loads, and leading the animals up and down hill when loaded.

As regards the drill of a Field Company as a parade unit, a few mornings will suffice for practising the simple movements required, but these may be combined with exercises in laying out the camp of the unit or forming bivouac. Loading up wagons, harnessing horses, and moving off in the dark require to be practised, and the strictest march discipline must be instilled before the company can take its place in the field with other arms.

The nature of the annual course of field works is laid down on broad lines in Corps Memoranda, but it requires to be adapted to local conditions. The best instruction is given

when all the work is carried out in accordance with General and Special Ideas, which have previously been communicated to all ranks. If field entrenchments can be constructed in combination with infantry, so that the whole front of an extended position can be prepared for defence, it is easier to teach the interdependence of works and the necessity for mutual support, which are of such great importance, and cannot properly be taught on a restricted digging ground or on a black-board. It is often difficult to arrange for the association of R.E. and infantry during this preliminary training, but it is best ensured by submitting proposals a long time in advance to the General Staff Officer of the Division, as the G.O.C. of the Division alone is in a position to issue the orders necessary to bring it about.

Whilst the sappers are being practised in making the more difficult fire trenches (or preferably in providing overhead cover in connection with trenches got out by infantry), in putting up obstacles, observatories, etc., the N.C.O.'s will be instructed in more advanced work, such as siting fire trenches, calculating, making up, and firing charges for demolitions, laying land mines, trip wires for flares, etc., every task being in connection with a tactical scheme. Similarly during the instruction of the sappers in the erection of frame, trestle, or suspension bridges, the N.C.O.'s must be taught to choose sites suitable for such bridges, and to design bridges for selected sites, using only the material at hand. If possible some of the bridges erected should be those designed by the N.C.O.'s.

Pontooning forms a very important part of the annual course, combining as it does hard physical work with a smartness of movement which can be arrived at only by means of accurate drill and highly developed intelligence. Men have to think quickly when making a pontoon bridge against time in a swiftly moving current. The value of this training is much enhanced if it is left very much in the hands of the N.C.O.'s, so that each commander of a bridging detachment[1] may learn to bear unaided the very considerable responsibilities of his position. A single officer should suffice to superintend the making of a bridge after the first few days' practice. The selection of sites for making floating and flying bridges and the adaptation of local craft are subjects for the instruction of senior N.C.O.'s. It is of course essential that work of this nature, involving the selection of a site, should be done in connection with a tactical scheme. Mounted men should be taught to row and to carry pontoons, and the horses must be trained to cross bridges by day and by night, both led in watering order and hooked in to wagons.

Night bridging is one of the most difficult operations that a Field Company can be called upon to carry out. It is es-

[1] A bridging detachment consists of 7 men under a N.C.O.

sential to success that the site should have been reconnoitred by day by the officer responsible for making the bridge, and if possible by some of the more senior of his subordinates. To start to make a bridge in the dark on a site not previously reconnoitred is to court failure. Absolute silence must be maintained by the sappers, orders given in a whisper, and all stores handled with care to avoid noise. Frequent practice, especially on the darkest nights, and in foggy or dirty weather, is necessary if the unit is to become efficient in this exceedingly difficult work.

So far nothing has been said as to the method of instruction to be adopted, whereas it is in reality of the greatest importance that what is taught should be taught well, *i.e.*, in such a way that the men of least intelligence should understand. It may, I think, be accepted as a rule that men take in what is being told them best when the instruction is given by one whose rank is not far above their own. Lectures by senior officers are of very little use; they partake too much of the nature of a parade movement, if sitting still on a barrack-room form listening can be said to be a movement in any sense at all. The sappers and junior N.C.O.'s are best taught by their own section sergeants, who should give them a short half hour's lecture every day on subjects included in the text books, in accordance with a programme laid down by the Company Commander. *Vivâ voce* examinations by the subaltern officers twice a week will soon show which men are paying attention and making progress and which are not, and the correctness of the instruction given, and the capabilities of the lecturers will be brought to light at the same time. This, then, is the system recommended for all courses of instruction for the men of the company: short lectures by the section sergeants and frequent *vivâ voce* examinations by the officers, after which exceptionally stupid men can be handed over to intelligent lance-corporals for personal instruction. The instruction of senior N.C.O.'s in more advanced subjects will, of course, be undertaken by the subalterns, in which case the *vivâ voce* examination will be carried out by the Company Commander.

(2). *Winter.*

The most important aspect of the winter training of N.C.O.'s and sappers is their employment at their trades, so that their technical skill may be improved, and they may become better fitted for carrying out such work of their own particular trade as will fall to their lot during active operations in the field, or more particularly during short periods of rest, when frequent calls will be made on them for work of all kinds. Arrangements are usually made for the sappers to be employed on the public works under their own N.C.O.'s and officers, and the latter thus become well acquainted with the technical skill of the men they will command in the field.

Signallers will be selected and trained, and semaphore signalling practised by all except those who show themselves

quite incapable of learning it, for whom other useful instruction must be found. Short company tours for officers and N.C.O.'s on bicycles can be organised, with a view to practising on fresh ground the work that is performed by the R.E. in the field, simple schemes being set dealing with the subjects enumerated above, under the heading "Officers."

The N.C.O.'s will be called upon to calculate quickly the strength of working parties, the number of tools, and amount of material and stores required, for any work that is pointed out to them, and every report must state where the necessary material is to be found. If the tour be carried out by half companies under the subaltern officers, N.C.O.'s down to the rank of Lance-Corporal may participate in this instruction, but it is difficult for any individual officer to supervise properly the work of more than six N.C.O.'s. Only such note books and appliances as would be available on service should be used.

At most stations it is possible to practise the preparation of temporary platforms, and the embarkation and disembarkation of horses and wagons in trucks lent for the purpose by the local railway authorities. All N.C.O.'s and men who have joined the company subsequent to the last course of bridging should be practised in erecting the Weldon Trestles[1] both by day and by night, until they can do it quietly and with rapidity, otherwise much time will be lost when the annual course of bridging takes place in the following summer. If a riverside site is not available, time is not wasted in practising the erection of these trestles on dry land.

III.—General Observations on the Training of the Company.

Throughout this article I have sought to lay special stress on the necessity of all work being subservient to a tactical scheme. Only in this way can the men of the company be trained to realise that all their work is done with the object of furthering the execution of their General's plans. At the same time, when at manœuvres or on active service, they must not be disappointed if they find that they have carried out work which appears to have proved unnecessary. A Commander must prepare for all eventualities, and he must order work to be done if he foresees a possibility of its being required. He is in no position to deal with certainties. Much time and trouble may have been spent in building a bridge, improving communications, or preparing a village for defence: the tide of battle sets unexpectedly in an opposite direction, and these works are not utilised, but this in no way proves that they should never have been executed, nor detracts from the merit of the men if the work was well done.

[1] These trestles form part of the bridging equipment carried by each company.

The rapid organization of working parties, smartness of movement whilst at work, and the quick response of the men to the orders of their N.C.O.'s, are all signs of a well trained company, but the greatest test of all is work done at night, when the cohesion of a well disciplined and well trained company must strike any experienced observer. The aim of all our training is to secure officers conversant with the requirements of all arms on the battlefield, self-reliant, and competent to direct their men in all tactical operations, and in the execution of any piece of engineering work; N.C.O.'s quick to grasp what is required of them, and not afraid of responsibility; and men (sappers and drivers) well disciplined, hardened to fatigue, and quick to respond to any call made upon them, whether by day or night.

Judging by what was done by R.E. at the last manœuvres, I think it may be said that of late years we have, as a Corps, made considerable progress towards efficiency in the part we have to play as the R.E. of a Division, but there is still much to be learnt.

IV.—The Training of Field Companies R.E. with other arms.

The Company having completed its training as a unit, it will next be trained to work in conjunction with other arms. During the company training opportunities may have been afforded for small parties of R.E.—it may have been a section or less—to participate in the Company or Battalion training of Infantry lying in barracks alongside them, but it is, as a rule, at Brigade training that the R.E. Field Company makes its first appearance as a unit. The C.R.E. will probably arrange beforehand with the General Staff Officer of the Division to allot each of his companies to a Brigade during the period of Brigade training, in which case it is necessary that the Brigadier should have instructions early to include a Company R.E. in his schemes. By keeping in touch with the Brigadiers, the C.R.E. can usually arrange to be present as a spectator during the tactical exercises, and see what use is being made of his companies, but each Company Commander will take his orders direct from the Staff Officer of his Brigadier. During this training it is possible for the R.E. to take part in all such operations as attack and defence, advanced or rear guard work, or outposts. In case the Brigadier consults the O.C. of the R.E. Company, the latter should be prepared to point out the way in which he can best assist in any situation which may be put before him.

The next step is Divisional Training, in which the three Infantry Brigades, the Artillery, R.E., and Mounted Infantry, are divided into opposing forces, and operate in accordance with schemes prepared by the General Staff of the Division. As the R.E. Companies will probably be allotted to opposing sides, the C.R.E. will be at liberty to accompany the G.O.C.

of the Division as a spectator, and this is his best opportunity of laying before his General any observations or suggestions he may wish to make as to the utilization of his Companies.

On the commencement of the period of Inter-Divisional Manœuvres, the Division first takes its place in line of battle under its own General. The C.R.E. will, as a rule, be in the confidence of his General to the same extent as are the Brigadiers of Infantry and Artillery. He will be consulted by the General Staff Officer as to the allotment of the R.E. units, which will appear in Divisional orders, and he will send to his Company Commanders such additional orders and instructions as he may think necessary. The C.R.E. will accompany the G.O.C. of the Division throughout the day, so as to be ready with suggestions as to the utilization of the R.E. in accordance with the ever changing phases of the operations in which the Division is engaged. He will, of course, arrange to keep in touch with his companies by means of mounted N.C.O.'s and cyclist orderlies, as he may at any moment have to switch on one or both companies to carry out important work, the necessity for which could not have been foreseen earlier. The Company Officers of all ranks, when their men are not being actively employed, must manage, without themselves getting in the way, to keep fully informed of what is going on in their vicinity. It is the duty of all officers to bring to the notice of their immediate superiors any opportunities for utilizing the services of the R.E., and it is, therefore, very desirable that each officer should be informed of the original orders of the G.O.C. and of any modifications that may be issued later.

Circumstances may frequently arise in which a Company Commander, or even a Subaltern in command of a Section may have to execute obviously necessary work of his own initiative, but if time permits, he should, as a rule, refer to higher authority before undertaking work of a serious character, or he may tire his men with work of only transient importance when the situation really demanded that they should be kept fresh for work foreseen to be necessary later in the day.

R.E. Companies allotted to a Brigadier for the purpose of carrying out a distinct tactical operation, revert to the status of Divisional Troops under the command of the C.R.E. as soon as that particular operation is concluded, unless the Brigadier takes upon himself to retain their services, in which case the Company Commander, whilst complying with the Brigadier's orders, will report the situation to the C.R.E. for the information of the G.O.C. of the Division.

If this article has in any way increased the knowledge of officers of other branches of the Service with regard to the organization and training of the R.E. Field Companies which they see alongside them at manœuvres, and given them fresh ideas as to how they may benefit by making use of their services, the writer will feel that he has done at least something towards the common good.

RASPLATA.

("THE RECKONING.")

By Commander VLADIMIR SEMENOFF, Imperial Russian Navy.

Translated, by permission of the Author, by L. A. B.

(Continued from April JOURNAL, p. 481).

CHAPTER III.

ARRIVAL AT VIGO—FROM VIGO TO TANGIER—THE ENGLISH ESCORT—THE WORDS OF THE PROPHET—MY POSITION ON THE STAFF—DAKAR—"EITHER TURN BACK OR RISK CAPSIZING"—"THE BLACK FEVER"—GABOON.

ON 26th October, at 10.30 a.m., our division arrived and anchored at Vigo. Here we found five German colliers, but it turned out that we were unable to begin coaling at once. On board each collier there was a Spanish water-policeman, who had orders "to prevent any replenishment of stores by the ships of a belligerent in neutral waters."

This prohibition was even extended to the *Anadyr*, which was in company with us and flew the Russian naval ensign. She carried in her holds about 7,000 tons of Cardiff coal, sufficient to fill up the bunkers of all the ships. I repeat, the *Anadyr* flew the naval ensign, and the Spanish Government therefore simply forbade all communication, any exchange of stores, even between the men-of-war, which had entered her ports. These were quite new, unheard-of rules of neutrality, which had been prepared at the instigation of England, the faithful ally of our enemy. It was said, however, that England would hardly have been successful in this if it had not been for the circumstances in which our auxiliary cruisers developed their activity; these were, as is known, simply "auxiliaries" for the—Japanese. I could not help recalling the bitter words of the French seaman about the personages who were directing our cruiser operations.

A lively interchange of telegrams with Madrid and St. Petersburg now commenced.

[Here comes a lengthy dissertation on the "Hull affair," on the assumption that torpedo-boats did attack the fleet that night, which is hardly of sufficient interest now, but which, for the sake of completeness, is printed as an appendix.]

Next day, at 1 p.m., we received the much desired permission, and started coaling, which was completed in twenty-four hours. Still, we did not continue our voyage. We had to wait and see what decision would be come to at St. Petersburg concerning the "incident." The English press was somewhat less violent, but was still pugnacious. News came that the Home Fleet was to be mobilised and combined at Gibraltar with the Atlantic [Channel] and Mediterranean Squadrons: in all, twenty-eight battleships and eighteen cruisers. Now, however, they were no longer demanding the return of the squadron, but only the supersession of the Admiral. Spirits throughout our ships were greatly depressed, for everyone realised that our game would be up if St. Petersburg gave in, since there was no one besides Rojestvensky who could lead the squadron. As to that there was only one opinion.

The Admiral was, as always, full of confidence and energy, and even more cheerful than usual. Someone read him an extract from a newspaper article, in which it was said that if he persisted in continuing his voyage with his division, the almighty British Fleet (twenty-eight battleships and eighteen cruisers) would have no difficulty in destroying him. The Admiral only laughed. "A strange amusement, to keep on counting this up. If we were to come to blows, then all we should be concerned with would be the first four ships, with which we could fight; how many more there might be—twenty-four or one hundred and twenty-four—is all one to us."

Whilst the Spanish Government met us in this unfriendly manner on our arrival—whether of their own accord or under foreign influence, I will not enquire—the inhabitants of the place were entirely on our side. Evidently the people still harboured the feelings of ill-will which had been engendered by England's attitude at the time of the Spanish-American war, and the citizens of Vigo lost no opportunity of showing us their friendly sympathy. This was proved by a host of trifling incidents, which it would be difficult and tedious to enumerate.

When the Admiral went on shore to discuss matters personally with the Governor, the crowd which had assembled in the street gave him a regular ovation on leaving Government House. The local papers expressed in unequivocal terms the view that "one should look upon the opponents of the ally of one's own enemy as friends, etc."

On the evening of 28th October, the Admiral's well-known "Order of the Day" was issued, and read out to the assembled ships' companies.

"To-day, 28th October, His Majesty the Emperor was graciously pleased to send me the following telegram:—

"'In my thoughts I am with you and my beloved squadron with all my heart. I feel confident that the misunder-

standing will soon be settled. The whole of Russia looks upon you with confidence and in firm hope.

'NICOLAI.'

"I have replied:—

"'The squadron is with your Imperial Majesty with all its heart.'"

"Is it not so, comrades? What the Emperor orders we carry out. Hurrah!"

This "Order of the Day" aroused much enthusiasm, but —I will be quite candid—not everywhere. The half-lowering looks, the expressions on some faces, a word spoken at random —all this showed that many a one would have welcomed the news of the enforced return with a feeling of relief, though not one of them would have turned his back voluntarily.

"Pity it did not come to open rupture with England," my old acquaintance, Lieutenant B——, said half-seriously, half-jokingly.

"Why?"

"Because then they would have scattered us directly we had got outside. Now we have got to go all that distance for the same object."

On the evening of 29th October it became known that an international commission was going to be appointed to deal with the "incident," and that each ship was to send one officer as witness.

On 30th October, at 8 a.m., the witnesses left by train.

From the *Suvoroff* Commander K—— had been sent. I confess that this selection astonished me. So far as I recollect, according to his own statement (others knew this as well), he came on deck after me, because at the moment when the first gun went off he was in his cabin, undressing, and on the point of turning in. He could hardly, therefore, have seen more than I, so that his evidence could not be particularly valuable. Besides this, he was the representative of the commander-in-chief of the Pacific Fleet on our Admiral's staff, had only just arrived from the seat of war, and, although he had not himself taken an active part in it, he had been, as it were, at the very centre of operations.

"You will overtake the squadron again somewhere?" I could not help asking him as he left.

In the meantime the chief of the staff did not permit the cabin thus rendered vacant to be occupied by one of the ship's officers, notwithstanding the great want of accommodation. On the contrary, he personally locked up every cupboard and drawer in it, which still contained papers or other articles, then the cabin itself, and kept the key.

"Then he is coming back?"

The chief of the staff cleared his throat, but said nothing in reply. Lieutenant S——, who, like myself, had chanced to witness this scene, took my hand, and said with an air of

mystery: "Do you know what that means? It is said that rats leave the ship before she sinks. They scent it. It is their instinct. They are wise animals; they thus preserve themselves against better times—for the benefit of the kingdom of rats."

On the evening of 31st October the desired reply from St. Petersburg apparently arrived, for a general signal was made to prepare for sea, and at 7 a.m. on 1st November the first division of battleships sailed from Vigo on its way east. The Spanish cruiser *Estremadura* escorted us through territorial waters.

At 10 p.m. a man-of-war—two masts, three funnels—steamed up on our starboard beam at good speed. She looked like the English cruiser *Lancaster,* which had come into Vigo during our stay. After having proceeded a short distance ahead of us she turned round, steamed down our port side, and disappeared. Soon afterwards we sighted, several miles astern, the lights of five vessels, which were apparently following us. From the way the lights were placed it was clear that they were men-of-war. They remained astern of us the whole night, but they did not steer a steady course; they moved about, sometimes steaming up on our starboard quarter, sometimes on the port, changing formation, dividing into two sections, etc.

At daylight we could see that we were, in fact, being convoyed by a division of English cruisers.

At 7 a.m. the *Orel's* machinery broke down. The squadron stopped engines. The constructor and the torpedo officer on the staff were sent to her. The Britishers, who had up to then followed in our wake, now became very busy: first they formed a line of look-outs on the horizon, then they re-formed. One cruiser then went off to the south-east at top speed, probably with a report; the others divided into two pairs, which scouted to the north and to the south of us, 5 to 7 miles off. All their movements were so regular, all manœuvres were carried out at such speed and with so much precision that they did not look as if they were due to unexpected orders, but as if a well-rehearsed play were being enacted before our eyes, in which neither the stage manager nor the prompter could be noticed.

"Do you admire this?"

I turned round. Behind me stood the Admiral, who could not take his eyes off the English cruisers.

"Do you admire this?" he repeated. "That is something like. Those are seamen. Oh, if only we . . . " and he ran down the ladder without completing his sentence.

In his voice there was suppressed anguish; an expression of so much suffering passed over his face that I suddenly understood. . . . I realised that though he did not allow himself any hopes which could never be realised, though he well knew the true worth of his squadron, yet he was faithful to his

trust, and would cede to no one the honour of being the first in the ranks of those who were voluntarily hastening to pay the reckoning.

By 8 a.m. the *Orel* had made good her defects and we proceeded. Towards evening the detached English cruiser returned, followed by a further division of four cruisers.

They accompanied us all night, during which they carried out various evolutions, and only on the morning of 3rd November, when they had made sure that we were going to Tangier, did they turn off to the eastward, making probably for Gibraltar.

In the roads of Tangier, where we arrived at 3 p.m., we found the whole squadron assembled, with the exception of the destroyers and the supply ships to which they were attached. Those had gone ahead to the Suez Canal.

Tangier was the only place where we were not only not molested in any way, but where we were even received with a good deal of friendliness. The Governor treated the Admiral, who paid him an official visit, as an honoured guest, welcomed him in the name of the Sultan, invited him to remain at anchor as long as it suited him, and to do there whatever he pleased. It was said that when our first ships arrived, the English Consul had tried to protest, as the representative of Japan's ally, but without success. He was told that His Majesty the Sultan of Morocco had not only not received any official intimation of a state of war between Russia and Japan, but that no relations had ever been established between him and the latter country; that he had hardly ever heard of this far-away empire, but that anyhow, according to the word of the Prophet, every stranger brought blessing upon the house which sheltered him, and therefore he was not asked who he was, whence he came, or where he was going, for there was no more sacred law than that governing hospitality. If ever the Japanese were to visit Tangier they could count with certainty on the same friendly reception.

How much more generous does this frank precept sound, which has been held sacred since the days of hoary antiquity, than all those declarations of neutrality, based on juridical considerations, which modern diplomacy has evolved.

At 9 p.m. the same day Admiral Fölkersam's division weighed and sailed on its way through the Suez Canal. (*Sissoi, Navarin, Svetlana, Jemtchug, Almaz,* and some auxiliaries.)

The east wind which set in that day freshened up so much during the night that on the morning of 4th November coaling had to be suspended. The wind went down in the afternoon, when the work was resumed.

At 3 a.m. on 5th November, an English squadron steering south-west passed in sight of Tangier.

During our stay here the hospital ship *Orel,*[1] and the provision ship *Espérance* (flying French colours), joined us.

[1] [Of the same name as the battleship.]

The latter carried 1,000 tons of frozen meat and other food supplies. Thus we were now well off as regarded medical assistance and provisions.

At 7 a.m. on 5th November we begun to weigh. The ships (fleet auxiliaries), which were not accustomed to moving in company, steamed about all over the place for a long time, before they got into their places in the line. Signal upon signal was made. One was told: "Increase speed"; another: "Stop engines. Don't go over there"; a third: "Steer more to starboard"; a fourth: "Steer more to port," etc. The two flag-lieutenants were run off their legs. At last, soon after eight o'clock, some kind of order was established, and our squadron moved off. We steamed in two columns: the starboard one consisted of the battleships *Suvoroff*, *Alexander*, *Borodino*, *Orel*, and *Ossliabia*, the port one of the fleet auxiliaries, *Kamtchatka*, *Anadyr*, *Meteor*, *Korea*, *Malay*, and *Russ* (ex-*Roland*, which had been bought and re-christened under the Russian flag). In rear of the squadron the cruisers *Nakimoff*, *Aurora*, and *Donskoi*, followed in wedge formation (double quarter line). This division was commanded by Admiral Enquist, whose flag was flying on board the *Donskoi*, but which was shifted to the *Nakimoff* later on. I describe this "order of sailing" so minutely, as it remained the same until we reached Madagascar.

At 9.45 a.m. we had just got into the prescribed formation and had settled down to the normal speed when the steering engine of the *Suvoroff* broke down, after jamming the helm hard a-starboard. She narrowly missed ramming the *Kamtchatka*. Luckily, the captain of the former never lost his head for an instant; he at once stopped the port engine and went full speed astern with the starboard one. A collision was happily avoided, but the whole of the port column got into utter disorder, as the merchant steamers composing it fled in every direction when they saw this battleship, apparently gone mad, rushing straight at them.

At the end of a quarter of an hour the damage was repaired and order was restored.

The passage to Dakar was only disturbed by one mishap —during the night of 8th November we remained stopped for five whole hours, owing to the *Malay's* machinery breaking down.

The weather was glorious—warm, with a light trade wind (we were just on the edge of its zone). I must, however, state that these were my personal feelings. I, who after a summer at Port Arthur, after a stay at Saigon, and the passage from there to Marseilles, had felt frozen through at Libau, in the North Sea, and "the Bay," felt very comfortable here, but the officers and crews of the ships had already begun to speak of tropical heat on leaving Tangier. How much Seltzer

water and ice, but above all, cold "Kvass"[1] was drunk on board the *Suvoroff* could not possibly be calculated. Amongst our men there was a professional brewer of Kvass, so that this beverage was excellent. Our route was little frequented. We hardly saw any sail going in either direction. The English cruisers still showed us their amiable attentions for some time longer, but by day they kept a long way off, sometimes they were quite out of sight, though at night they closed nearer; when we were south of the Canaries they left us for good.

I forgot to mention that at Tangier, before the squadron divided, a final effort was made to get rid of me. The chief of the staff asked me in a very amiable, though very decided manner, what the particular appointment was which I intended applying for to the Admiral, offering me his support at the same time. I replied no less decidedly that at the time of my arrival in the squadron at Libau I had asked for any appointment (no matter what) on board any ship, and that I was naturally under the impression that if anyone vacated an appointment from whatever cause, I should have some claim to it. But I would in no case request that anyone should be deprived of his appointment, or should be ordered elsewhere; I would never consent that even the shadow of an injustice should be committed for my personal benefit.

"If you consider my position here to be not normal, not right," I ended, "if you have any intention of improving or regulating it, I should be very grateful to you, but I shall not apply for this myself, and prefer to leave the whole business in your hands, with the request for a definite settlement."

I do not know what report he made, but the result was that an order was issued that I was to be borne on board the *Suvoroff*, as head of the naval war section on the staff of the admiral commanding the Second Squadron. My official position was thus somewhat altered: I was no longer "borne for passage" only, but a supernumerary to whom a special duty had been assigned. But as a matter of fact everything remained as before. Not only was I not admitted to the "Holy of Holies," nor initiated in the plans of our prospective operations, but even the current business of the staff, the cipher telegrams which were sent off or received, were kept a secret from me. If I chanced to enter the staff office, where the chief and the members of the staff were eagerly discussing the latest news received, their conversation was broken off so markedly that there was nothing left for me to do but to apologise and withdraw.

The position of head of the naval war section on the staff was not provided for in the establishment. It was created during the war, but only on the staff of the Commander-in-

[1] [The national beverage of Russia since the sixteenth century. It is a fermented drink made with yeast, water, flour or bread, also malt. In the services, each ship or regiment brews its own requirements.]

Chief,[1] and therefore the several departments and duties had been allotted amongst the specialist members of the staff and the flag-lieutenants.[2] At my first attempt, on taking up my new functions, at clearing up this or that point, which unquestionably concerned my special work, I at once saw that this was being met with the greatest hostility, and led to unedifying squabbles and discord, as an intrusion in another's domain, as a violation of some sort of rights.

I on my side considered it would be criminal, in view of the serious situation in which the squadron was placed, if I were to cause even a shadow of discord in this fully organised and trained staff, the solidarity and unanimity of which appeared to me to be indispensable conditions for any success. To drag the Admiral into this squabble seemed quite inadmissible, seeing that he was already overburdened with work and cares, and that he alone would in that case have to be my support.

I do not know if I acted rightly then, but I decided to curb my ambition for the sake of our cause, to renounce my great aim of having a share in the conduct of the squadron, to make no attempt at penetrating the secrets it was desired to keep from me, outwardly to content myself with the part of the "passenger" and "expert," who was left on the staff by the Admiral's desire. I intended only to assert myself independently in the case of dire need, but on the other hand to obtain due recognition of my ideas by influencing, in a diplomatic manner, the specialist officers and captains of my acquaintance, as well as the junior flag-officers. In the end it became evident that these channels were well chosen, for under false colours my proposals, in the majority of cases, did not meet with so much opposition, as if they had emanated from myself.

On 12th November, at 8 p.m., we arrived at Dakar. Colliers were awaiting us here; still, we were not able to commence coaling at once, although we were in the territory of our good allies. No sooner had we anchored than the captain of the port came off to see the Admiral, but not—alas!—to welcome us and to offer us his assistance, but to propose that we should leave again at once. He informed us that Japan had protested against belligerent warships, on their way to the seat of war, being permitted to coal in neutral ports; that England had energetically supported this protest, and that the French Government had apparently *not* decided to reject this new principle in international law. At least he had orders to find some way out of this difficulty, to select and indicate to us some spot for coaling outside territorial waters, but in any case not to permit this operation to be commenced, without having previously arrived at an understanding with Paris.

[1] [Nominally still Admiral Skrydloff at Vladivostok.]

[2] An "Admiral's Office," with a secretary and clerks (accountant officers) does not exist in Russia. All their work is done by executive officers.

Personally, he placed himself entirely at our disposal, and in this he was evidently quite sincere. (This was very much like the reception accorded to the *Diana* at Saigon: the warmest welcome on the part of the local authorities and cold reserve on the part of the home government.) The Governor promised assistance of all kinds, offered to send us not only fresh provisions, but, if necessary, workmen—only we were to go.

Where to? To the Cape Verde Islands, for instance? There the depth of water made it possible to anchor outside territorial waters, that is, beyond 3 miles from the coast.

We who had just come in from sea knew very well what a swell we should find there. Under these conditions coaling was not to be thought of.

The Admiral stated categorically that since coaling in the open sea was impossible, and sailing without coaling was equally impossible, the prohibition to coal in Dakar roads was equivalent to a demand for the disarming of any of the vessels belonging to one of the belligerents which might enter a neutral port; that this, however, was contrary to all the declarations of neutrality. This brought things to a head. Telegrams flew to St. Petersburg and to Paris.

By the afternoon it was announced that the negotiations were taking a favourable turn for us; we therefore took advantage of the great distance between our anchorage and the French settlement on shore, from where one could not "see clearly" what was going on in the squadron, hauled the colliers alongside, and started coaling.

The reception we met with at Vigo, and again here, in the port of an allied power, forced us to consider very seriously what should be done as regarded the voyage of the squadron round the Cape of Good Hope. Our next stoppage was to be at Libreville, a French colony, 40 miles north of the equator, situated at the mouth of the Gaboon River, in which water was plentiful. If we entered it we were as snug as in any secure port, but, unfortunately, the French local authorities had definite orders, according to information received thence, not to allow us to enter the river at all.

At the same time it was pointed out that the depth of water at a distance of over 3 miles from the shore (that is, outside territorial waters) was generally from 10 to 12 fathoms, and that if we were to anchor there (that is, in the open sea), we should not only not be prevented from coaling, but would receive every possible assistance. That was truly French—and amiable; at the same time it did not commit them to anything. It was just as if one said to a hungry man sitting under an apple tree: "I have no right to pick even *one* apple for you, but if one should drop off, eat it by all means; I would even peel it for you."

It must, moreover, be pointed out that November is the month of the most variable weather at Libreville. Calms pre-

dominate, but from time to time there are violent storms, with lightning and thunder (tornados), which in strength are hardly inferior to the West Indian hurricanes, and which, though they do not last so long as these, are more frequent. Apart from the danger of the tornado itself a heavy swell continues for a long time afterwards. In short, coaling "at sea, near the Gaboon," could in no way be looked upon as a certainty.

The next stoppage (1,000 and odd miles south of Gaboon) was to be in Great Fish Bay—a very large bay, which offers perfect protection against the prevailing winds and the swell. Neither on the shores of the bay, nor for hundreds of miles around, is there a tree, or a bush, or a single fresh water spring—nothing but sand. Without doubt one could not imagine a better place for our squadron, hunted out of every port. But in our days no "no man's land" can be found anywhere on the globe, and this desert belonged officially to the Portuguese. If an English squadron were to appear in the bay, bringing a Portuguese official from the neighbouring town of Benguela, who was to request us to leave, then, in case we declined, the English were undoubtedly entitled to place their forces at his disposal for action against us, as we should be transgressing the neutrality rules which had recently been formulated. How would this end?—It does not pay to foretell the future. Come what may, this place also could hardly be thought of for coaling purposes.

On the entire west coast of Africa there was only one spot on which we counted with certainty: Angra Pequeña, 700 and odd miles south of Great Fish Bay, the only harbour of the German colony on that coast. When it is considered that our coal was delivered to us by the steamers of the Hamburg-Amerika Line, we were surely entitled to count upon not meeting with any obstacles there (and in this we were not deceived).

After that, Madagascar. *Ni plus, ni moins,* as all other anchorages, which were suitable for our purposes, belonged to the English, whilst Delagoa Bay, which had been thought of when the route was being planned, belonged to Portugal, which came to the same thing.

The possibility of coaling at sea—in the regions of the south-west trades, south-east trades, and the westerly gales—was of course out of the question. The point to be decided therefore was: Should we turn back, or continue with the prospect of having to fill up the new battleships, with, say, 2,400 tons of coal each, as against the normal stowage of 1,100? Now the Technical Committee had found that these ships, which already drew 2½ feet more than was intended, gave cause for anxiety when their bunkers were filled up to extreme stowage, and had informed the Admiral accordingly. In consequence of this communication the Admiral had issued on 14th October a general memorandum, in which it was laid down that "to ensure a safe metacentric height, the following was

to be observed by the ships concerned (1) To avoid stowing liquids in the free spaces in such a manner that these would be able to move when the ship rolled; thus, for instance, boiler water stowed in the several compartments of the double bottom should be used up in rotation, that is, no water was to be taken out of one compartment until the preceding one was empty. (2) All objects of any considerable weight were to be securely lashed. (3) Coal was to be used in such a manner, that as it was taken out of the lower bunkers, a like amount was to be moved down from the upper to the lower bunkers. (4) In heavy weather all ports and other openings in the ship's side were to be closed."

I beg pardon of my "shore-going" readers for citing this order, which can hardly be either interesting for even intelligible to them, but which speaks volumes for those familiar with the sea.

Thus the question to be decided, put bluntly, was: "Either turn back, for there is nothing to be had here, or risk capsizing."

Turn back—easier said than done. How was such a thing conceivable, since "the whole of Russia was looking upon us with confidence and in firm hope."

Here the enormous difference which exists between a general commanding an army, and an admiral commanding a fleet showed itself clearly. In the case of the former there cannot, under any circumstances, be any question of his personal bravery. If he were to declare that he did not consider himself justified in sending the troops confided to his care to certain destruction, one could accuse him of anything one pleased, but never of personal cowardice. With the Admiral it is just the opposite. He is on board his flagship, on which the adversary concentrates his fire, in the very centre of the danger, he is the first to risk his skin. . . . If he were to say that he did not want to lead his squadron to certain destruction, it would always be possible (whether rightly or wrongly is another question) to hurl at his head the terrible words: "You are afraid!"

Now judge for yourselves; when Russia was in this mood, when it "looked with confidence and in firm hope on the Second Squadron," would it have been possible for the officer commanding this squadron to have spoken of turning back? And so he decided to go ahead, and disregarding the warning of the Technical Committee to fill up the ships with coal—as it was expressed in the mess—not only "up to the neck, but over the ears."

At Dakar the battleships of the *Borodino* type were ordered to take on board 2,200 tons of coal, which meant that not only the belt deck or flats, but the main deck as well had to be used as stowage places. The Admiral signed and issued a general memorandum, drafted by the constructor on the staff, in which the manner of carrying out this unusual operation

was laid down very precisely, and all precautionary measures, which were considered necessary, both in taking on board and in using up this "deck cargo," were prescribed.

The constructor on the staff, P——[1] (an excellent mess-mate, who enjoyed universal sympathy), was extremely busy, went from ship to ship, and finally assembled the other constructors for a consultation on board the *Suvoroff*.

"Well, and what do *you* think of it?"

"If there is no help for it, then we must manage it somehow," he said.

"Shall we capsize?"

"No, at least probably not, if the maindeck ports keep out the water. Let us hope we shan't get a strong head wind, for then things will be very bad for us. When the maindeck ports no longer hold and the water pours in—then good-bye."

During the night of 12th-13th November the governor received instructions from Paris to permit us to coal, but only on condition that the operation was to be completed in twenty-four hours. As a matter of course, this period commenced with the moment of receiving this decision, that was 4 a.m.

13th November was the first day of our "coal troubles." We afterwards went through many such days, but this first one was especially heavy.

In Dakar, as in the tropics generally, all sign of life ceases between 10 a.m. and 3 p.m. The Government offices are closed; the shops do not sell anything; the troops don't leave their barracks; the European workmen interrupt their work; everyone not only seeks protection in the shade against the sun's scorching rays, but endeavours to move as little as possible in the shade, as every movement produces profuse perspiration. These rules were observed by people who, to a certain degree at least, had become acclimatised and accustomed to this life—but for us there were none of these conveniences. For us rapid coaling was one of the first conditions of life; everyone took part in this, beginning with the captain; the ship's company worked in two watches, night and day. In a flat calm, and with the thermometer never under 90° F., the *Suvoroff* was completely smothered in a cloud of coal dust for twenty-nine hours on end. The sun's rays by day, those of the electric light by night, could hardly penetrate this black fog. From the bottom of the colliers' holds the sun had the appearance of a blood-red spot. Blacker than niggers, streaming with perspiration, lumps of cotton-waste between their teeth (it was necessary to breathe through the cotton-waste, to avoid getting the coal dust into the lungs), officers and men

[1] [E. Politovsky (author of "From Libau to Tsushima," John Murray, London, 1906). Every Russian ship of a certain size carries an officer of the corps of naval constructors, whilst a senior one serves on the Admiral's staff.]

were at work in this hell. And nowhere could one hear the slightest grumbling, not even a hint that after all there was some limit to human endurance. Extraordinary-looking creatures—black and streaming with moisture—ran up to the bridge every now and then, "only for one minute, for a breath of fresh air," quickly asked the signalman: "How are we getting on? How much was it for the last hour? Are we ahead of the others?" and disappeared again below at once.

And what went on in the closed-in coal-bunkers, where the coal had to be stowed as it shot down from above? Where the temperature was 115° F.? Where the strongest and healthiest could not stand it for more than fifteen or twenty minutes! No one enquired. It was necessary, there was no help for it. The work was kept at boiling point. It happened every now and then that one of the workers could no longer keep on his legs. He was then quickly carried out, the fire hose turned on him, and when he had recovered his breath, he returned to complete his task. There were many cases of light sun- or heat- strokes, but happily they all ended well. Only on board the *Ossliabia* Lieutenant Nelidoff[1] died at 3 p.m. from heart failure. His funeral took place on 14th November, just before sunset, after the heat of the day. All the officials of the colony were present; the garrison of Dakar took part in it and rendered the last military honours.

The whole of that day was devoted to washing down, cleaning, and resting.

The next three days (at sea) passed uneventfully; but then our troubles began. I will only enumerate the principal ones: on 18th November, at 8 p.m., the excentric strap of one engine broke on board the *Borodino*; until this was replaced by the spare one (a difficult job) the *Borodino* steamed with one engine only, and was not able to do more than 7½ knots, the squadron meanwhile reducing to that speed. The damage was made good by 8 a.m. on 20th November, when we resumed our normal speed of 9½ knots, but at 7 p.m. the cross-head pin of the air-pump broke on board the *Malay*. The tug *Russ* (ex-*Roland*) was ordered to take her in tow; they "backed and filled" for a long time, and what with their want of practice and the darkness, it was 10 o'clock before they were able to go ahead, but then only at 4½ knots. Towards morning the damage on board the *Malay* was repaired, and we once more went on 9½ knots.

On 26th November, at 6 p.m., we anchored in the open sea, to the southward of the mouth of the Gaboon River. The weather was fine. On the two preceding days we had experienced a heavy swell, but now nothing moved. The German steamers and the *Espérance* (the refrigerating ship) joined us from the river. The lieutenant-governor also came out, bringing heaps of flowers and good wishes. He was apparently much pleased that we had not entered the river, as he possessed

[1] The son of the Ambassador at Paris.

no means of preventing it, and as there was an English consul at Libreville, who would certainly not have let this opportunity pass without raising an outcry over such a breach of neutrality.

And these were our allies!

Nikolai Ugodnik and Seraphim Saroffsky[1] did all that was in their power. No tornado came to trouble us; there was hardly any swell from seaward.

We coaled almost as if in harbour.

On 1st December, at 4 p.m., we weighed and proceeded—apparently just in time!

On 2nd December—the sky thickly overcast and a heavy swell in which the overloaded battleships staggered about badly; the same thing the next day.

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[1] Saint "Nicholas, the Just," patron of sailors, and Saint "Seraphim of Saroff," the new saint, canonised during the present reign, and hence frequently invoked.

(To be continued).

A COMPARISON BETWEEN THE OPINIONS ON THE TRAINING AND EMPLOYMENT OF CAVALRY RECENTLY PUT FORWARD IN THE ENGLISH PRESS, AND THE VIEWS OF CERTAIN OTHER WRITERS.

THE following extracts from various writers are interesting :

" 1866 was also a bad year for cavalry, though not so bad as is usually imagined . . . for the Austrians were usually obliged to attack under conditions which rendered success impossible . . . yet even then they frequently came within an ace of obtaining glorious results. . . . But the storm of opinion had fairly set in against them, and by 1870 it blew a perfect hurricane.

"On every field day, in every paper, the cavalry were told that their sun had set for ever, and what wonder, under the circumstances, that they came to believe it."—(Colonel Maude.)

"The Englishman is a born rider, and sits his horse with an ease and confidence our men rarely can attain to. With such advantages it is extraordinary that the cavalry is not better than it is. But here again the want of experience in handling large bodies of cavalry, and the fatal fallacies which the breech-loader brought in its train, have all borne fruit. The narrow-minded ideas on cavalry taught in the English military schools, and the strong prejudice against them existing in the minds of the Umpire Staff, who almost invariably order them out of action if they attack either infantry or guns, have acted most prejudicially on all concerned. We ourselves knew what it was to suffer similarly before the glorious day of Vionville—Mars-La-Tour."—(Extract from lecture given by a German officer in Berlin shortly after his return from the large camp of Exercise held at Delhi in 1885.)

General Langlois, the well-known French military writer, writing of the South African Campaign in his book, "Two Recent Wars," says :—

"His (the Boer) retreat was nothing less than a flight, and an active cavalry would have ruined his chances of standing again on the defensive. But for reasons which we will not go into here, the British cavalry never pursued."

"Every kind of fancy ran riot in the conclusions drawn from the South African War. The change of armament would not only produce an evolution in the methods of handling troops, but even a revolution in the art of war.—(*et seq.*, p. 85.)

"We are told that the power of fire-arms at the present time renders the *rôle* of cavalry impossible in the fight—at least by shock action. It seems to me, on the contrary, that modern arms by their demoralising power of surprise, place at the mercy of the cavalry any troops who allow themselves by their own fault to be surprised by fire. For instance, if the Boers at Colenso and Magersfontein had had, instead of mounted infantry, several well-trained and well-led squadrons, with confidence in their horses, their swords, and the charge, would not the British battalions have fallen an easy prey to them when they were surprised in close formation by rifle fire at short range?"—(*et seq.*, pp. 96-97.)

"It cannot be said that they (the cavalry) were checked by rifle fire, for they made no attempt to do anything. It would appear that either Lord Roberts dared not expose his cavalry, or had no confidence in them; and he was wrong, when he had a leader like General French under him."

"Our cavalry can therefore reassure themselves. While the battle is going on they will still find occasions for brilliant charges against troops which have been demoralised by a sudden and crushing fire. . . . More than ever will they be able to distinguish themselves in the decisive attack by a charge in mass."

"The opinion of Lord Roberts, who, so to speak, never employed his cavalry in South Africa, except in the ride to Kimberley, does not in any way modify my views. What we require is a vigorous, very mobile cavalry, trained equally to fight on foot or to ride in a charge, and with as much confidence in their swords as in their carbines. But it must above all things be admirably mounted and be composed of good and bold riders. Given leaders of ability, we can let them go, for they will do great things."

Now let us see what General Palat, an infantry officer, says in his book, "Le Combat de Toutes Armes." Discussing the battle of Bapaume, 1870, he says:—

"Here, as at other times (in 1870), the German cavalry generals were far from possessing the boldness and the spirit of enterprise of their juniors, or even of their brothers-in-arms of the infantry. . . . Nearly every one of them proved himself very much below his task, for reasons which would be too long to analyse here. Let us confine ourselves to saying—with Major

Kunz—that the habit, previous to the war, of putting out of action at manœuvres all cavalry risking a charge, is the origin. Then, the criticisms wanting in a friendly tone, and finally, the tendency of cavalry generals to remain quite passive during the combat. One can make this remark with profit in other countries besides Germany."

Referring to the losses in this battle, in which the cavalry suffered very little, he says:—

"This inequality shows sufficiently clearly that the Prussian cavalry could have made a much greater use of its very great numerical superiority."

In a critical study of Lord Methuen's tactics at the battle of the Modder, General Palat says:—

"Let us add, that he could have made his mounted troops intervene efficaciously and have held them ready to carry out a pursuit under the best conditions."

In his study of the battle of St. Privat, he quotes General von Kessel (another infantry officer), who commanded the 1st Brigade German Guard, lying within 600 yards of the village of St. Privat, when a feeble demonstration of attacking was made by two squadrons of the French cavalry:—

"Infantry who have suffered heavy losses are never, in open ground, agreeably surprised when they see the hostile cavalry approaching to attack; one never knows beforehand how these things are going to turn out. I looked on our situation as one of the gravest peril, and I could not believe that the charge, expected so long, would be so feebly carried out."

And again Palat writes:—

"It was at this moment that the Marshal said to Du Barail: 'It is necessary to charge.' . . . But faith was wanting in the brilliant commander of the 1st Cavalry Division. He thought the charge 'useless,' 'impracticable,' because he had to cross 600 metres to reach the infantry and 2,000 metres to the artillery. He did not take into account the state of exhaustion of Kessel's Brigade, nor the disorder that the brusque appearance of our cavalry would have sufficed to throw it into. . . .

"But our cavalry soldiers had no more faith in themselves than had Du Barail. Although the fire of the Prussians was comparatively harmless, they remained undecided, stopped, then turned about before reaching the enemy. Their total losses for the day were 4 officers and 28 men!"

Similar opinions could be taken from the writings of General Bonnal (another infantry officer) and many more, but we can

see from the above quotations how, in Continental Armies, officers of the other arms regard the *rôle* of their cavalry; how they believe in employing their cavalry for shock-action; how determined they are to so employ them regardless of loss, and how merciless they are in their criticisms when cavalry fail to make use of their opportunities.

General Langlois sums up his review of our cavalry work in South Africa thus briefly:—

> "This arm can do no more than is demanded of it, and nothing was demanded of it in South Africa."

These views of men both well read and well experienced in war cannot be lightly set aside. They are quoted as showing not only what such men consider it possible for cavalry to do, but also their opinion of the ill-effect of instilling into all ranks of an army during training a want of confidence in the power of its cavalry to act with any effect on the battle-field.

Are the soldiers quoted above less competent judges than the writers in our Press? These soldiers, it may be noted, are not cavalry men, "blinded by the glammer of cold steel." May it not be that these soldiers are right and our Press tacticians wrong? If so, may it not be that the latter—no doubt in the honest belief that they are doing good—are really doing infinite harm by instilling false ideas? It would be well that soldiers, at any rate, should weigh these considerations before they accept and teach the opinions now being urged in the Press.

H. P. Gough.

NOTES ON THE NEW REGULATIONS REGARDING THE RUSSIAN "NICHOLAS MILITARY ACADEMY."

From the *Russki Invalid*, No. 199 of 25-9-09.

THE designation of the college is changed from "Nicholas General Staff Academy" to "Nicholas Military Academy."

The object of the courses at the College is to provide army officers with the means of acquiring a higher military education, and at the same time to prepare officers for service on the General Staff.

On completion of their course, officers will not be appointed at once to the General Staff, but will return to their units, with which they will continue to serve until they may be selected for service on the General Staff.

Henceforward, for an officer to be appointed to the General Staff, it will be not enough merely to have completed a course at the Academy; he must, in addition, prove himself to be an intelligent, hard-working and zealous officer, and be endowed with certain qualities which are considered necessary in a General Staff Officer.

Officers will only be considered to have "passed" when they have completed all three courses[1] at the Academy.

On completion of the three courses the officers will be divided into two classes, according to their abilities, and it is only from the first class that candidates will be taken for the General Staff.

The qualifications for a first class certificate are precisely the same as those required for selection to serve on the General Staff.

Officers who obtain first class certificates will, before joining their units, be attached to the Headquarter Staff of their respective military districts for the purpose of attending manœuvres in the capacity of General Staff Officers.

Admission to the Academy is open to all officers of and below the rank of captain; (formerly it was limited to staff-captains[2] of the Line and lieutenants of the Guard). In order to ensure that officers admitted to the Academy shall have a

[1] *i.e.*, Junior course 1 year. Senior course 1 year. Extra course 9 months. Total 2 years and 9 month.

[2] An intermediate Regimental rank between lieutenant and captain.

thorough knowledge of drill and interior economy; all candidates, before admission, must have completed three years regimental service, during which time they must have attended not less than two manœuvre trainings with a company, squadron or battery.

Searching inquiries are made into the moral character of a candidate, and the recommendation of his commanding officer alone is not considered a sufficient guarantee of fitness.

Candidates are required to pass a preliminary written examination with a view to testing their general educational acquirements.

Only one foreign language[1] (instead of two as formerly) is obligatory at the entrance examination. The selection of a particular language is left to the candidate.

The oral examination in tactics is abolished, it being considered that the written preliminary examination in this subject is a sufficient test.

Instruction in the Russian language is excluded from the curriculum of the Academy, but greater stress is laid on this subject at the entrance examination.

Officers who pass direct into the senior course are only required to pass an examination corresponding to the remove examination from the junior to the senior course.

Staff captains may be promoted to the rank of captain while studying at the Academy, but will rank as junior to officers of that rank serving with units.

Two subjects, previously optional, are now made obligatory for students in the Academy, *viz.*, General Staff Duties and Naval Warfare.

At least one foreign language must be studied at the Academy, but officers, if so desirous, may also study other languages, such as French, German and English.

In order to practice students more thoroughly in handling troops, the summer training is extended to one month.

The subjects dealt with in lectures will no longer be classified as of primary or secondary importance.

Officers who obtain first class certificates on passing out, will, instead of being granted accelerated promotion, receive a special decoration.

Greater facilities than heretofore will be afforded to the professors to acquire useful information and practical experience by attending field and fortress manœuvres, firing practices, staff tours, etc., both in Russia and abroad.

In view of the fact that for military topographers a very high standard of purely military knowledge is not absolutely necessary, candidates for the Topographical Section of the Academy are only required to have completed two years regimental service, and need not have attended manœuvres. They are exempted from examination in artillery and fortification,

[1] French, German or English.

and are not required to undergo the extra course at the Academy. Officers of the Topographical Section will not be permitted to serve in combatant appointments on the General Staff.

Précis of A.O. 344/09.

The full course at the Academy lasts for two years and nine months, and is divided into Junior Course (1 year), Senior Course (1 year), and Extra Course (9 months).

The total number of officers who can be accommodated in the Academy (including the Topographical Section) is 314.

Vacancies are filled annually by competitive examination. In the event of the number of officers who qualify exceeding the number of vacancies, priority will be given to those who obtain the highest number of marks.

Not more than 7 officers in each year can be admitted to the Topographical Section.

Officers desirous of presenting themselves at the examination for admission to the Academy are required to pass a preliminary qualifying examination under the direction of the Headquarter Staff of their respective military districts. This preliminary examination takes the form of written essays on tactics, political history, geography, and the Russian language, and a practical test in riding.

At the final examination for admission to the Academy the following subjects are obligatory:—

(1) Drill regulations.
(2) Artillery.
(3) Fortification.
(4) Military administration.
(5) Mathematics (arithmetic, elementary algebra, geometry, and plane trigonometry).
(6) Political history.
(7) Geography.
(8) Russian.
(9) One of the following languages: German, English or French.
(10) Topography.

Candidates for admission to the Topographical Section are exempted from examination in subjects (1), (2) and (3), but are required to take up higher mathematics and physics.

The course of study at the Academy includes the following subjects:—

(1) Strategy.
(2) Tactics.
(3) General Staff Duties.
(4) Military History.
(5) The History of Military Science in Russia and elsewhere.

(6) Military Administration.
(7) ,, Statistics.
(8) Artillery.
(9) Engineering.
(10) Naval Warfare.
(11) Geodesy.
(12) Military Topography.
(13) Political History.
(14) One of the following languages: German, English or French.

Students in the Topographical Section are exempted from subjects (1), (3), (8), (9) and (10), but receive additional instruction in theoretical and practical astronomy, higher geodesy, and physical geography. On completing the senior course they are sent for two years to the Nicholas Observatory at Pulkova.

All students at the Academy are required to undergo a course of riding.

The summer months are devoted to practical instruction in sketching, tactics, the handling of troops, and the construction of fortresses.

Officers who have successfully completed the three courses at the Academy are entitled to the following rewards:—

(a) The badge of the Academy.
(b) One year's extra pay.
(c) Four months' leave on full pay and allowances.
(d) The right of transfer from one unit or branch of the service to another. (This does not apply to officers of the Guard).
(e) Decorations according to merit.

Officers who, on passing out, are only awarded second class certificates, are entitled to all the above rewards with the exception of (e).

NAVAL NOTES.

KING GEORGE'S MESSAGE TO THE NAVY.

His Majesty the King has been graciously pleased to issue the following message to the Navy :—

MARLBOROUGH HOUSE,
May 9th, 1910.

It is my earnest wish, on succeeding to the Throne, to make known to the Navy how deeply grateful I am for its faithful and distinguished services rendered to the late King, my beloved father, who ever showed the greatest solicitude in its welfare and efficiency.

Educated and trained in that profession which I love so dearly, retirement from active duty has in no sense diminished my feelings of affection for it.

For thirty-three years I have had the honour of serving in the Navy, and such intimate participation in its life and work enables me to know how thoroughly I can depend upon that spirit of loyalty and zealous devotion to duty of which the glorious history of our Navy is the outcome.

That you will ever continue to be, as in the past, the foremost defender of your country's honour, I know full well, and your fortunes will always be followed by me with deep feelings of pride and affectionate interest.

GEORGE R.I.

HIS LATE MAJESTY KING EDWARD VII. AND THE NAVY.

His late Majesty's connection with the Navy was necessarily through the force of circumstances, while still Prince of Wales, never so close a personal one as with the Army. Long years elapsed without his holding any rank, honorary or otherwise, in the Senior Service, and it was not until the 18th July, 1887, that he was appointed an Admiral of the Fleet by the late Queen Victoria.

But although holding no rank as a naval officer until the date given above, His late Majesty, besides showing the keenest interest in naval matters generally, ever kept in close touch with the Service, manifesting the strongest personal interest in its welfare from the time when in the summer of 1860 he was conveyed across the Atlantic on board H.M.S. *Hero* for his memorable visit to Canada and the United States. How highly he thought of the naval system of training was evidenced by his sending the late Duke of Clarence to the *Britannia* at the same time as the present King as well as for the cruise round the world in the *Bacchante*, which followed the completion of their term of training in the renowned old ship at Dartmouth; and after his accession to the Throne he manifested in many ways his affection for and high appreciation of his Navy.

It was on 9th July of 1860 that he embarked at Plymouth on board the *Hero*, a fine screw, 91-gun, two-decker, bearing the broad pennant of Commodore Seymour, and the following morning left for Halifax, escorted by the *Ariadne*, a new and magnificent 26-gun steam-frigate, commanded by Captain Vansittart. The little squadron was escorted some distance down Channel by the Channel Fleet, and after a fine passage, touching at St. John's, Newfoundland, on the 24th, arrived on 30th July at Halifax. He arrived at Quebec on 18th August, the *Hero* being escorted to that city by the flagship of the North American Squadron and other vessels. At the conclusion of his tour in Canada the Prince proceeded to Washington, and on 20th October, having re-embarked on board the *Hero* at Portland, Massachusetts, that ship, escorted by the *Ariadne*, left for Plymouth, where she arrived on the 15th November, the passage across the Atlantic being much delayed by fogs and finally by a heavy south-easterly gale, experienced when approaching the Chops of the Channel. In spite of the bad weather experienced, and the consequent excessive tumbling about of the ship, the late King proved himself an excellent sailor, and was able to enjoy himself when most of his suite had completely succumbed to the motion of the ship.

It was due entirely to the influence the late King brought to bear that, when Queen Victoria, accompanied by himself and the Princess of Wales, proceeded in state to St. Paul's Cathedral for the national thanksgiving service for his recovery from his dangerous attack of typhoid fever, the Navy was adequately represented and took its proper share for the first time in providing guards of honour and assisting in the lining of the streets, and the precedent thus set has since been followed at other great national ceremonials.

As representative of the Queen he reviewed, on the 26th June, 1897, the magnificent fleet assembled at Spithead in honour of Her late Majesty's Diamond Jubilee, when 165 British warships in four lines five miles in length were assembled at Spithead, in addition to which were two lines of foreign warships.

On the 16th August, 1902, the King reviewed the fleet at Spithead, assembled in honour of his Coronation, at which were present 103 vessels, including 20 battleships, 24 cruisers, and 32 destroyers.

On the 8th August, 1905, His Majesty reviewed off Cowes the French fleet, under Vice-Admiral Caillard, on the occasion of its visit to Portsmouth, and the Channel Fleet, under the command of Admiral Sir A. K. Wilson, which had been assembled to receive the French fleet with due honour.

On the 3rd August, 1907, he again showed his interest in all matters affecting the efficiency of the Navy by reviewing the then newly-constituted Home Fleet, under the command of Vice-Admiral Sir F. C. B. Bridgeman, at which 174 vessels of all classes were present, the flagship of the Commander-in-Chief being the *Dreadnought*, then only recently completed; on the following day, accompanied by the Queen, he proceeded to sea in the *Dreadnought* and witnessed some target practice from her guns.

The last grand review of the fleet by His Majesty was that held on the 2nd August last year, when, accompanied by the Tsar, he reviewed the Home and Atlantic Fleets, which were anchored off Cowes for the reception of the Russian Emperor. Three days previously the King had reviewed the fleet when on his way from Portsmouth to Cowes, and had witnessed an attack on the *Dreadnought* and her sister ships by destroyers and submarines. On the occasion of these two reviews there were 150 ships in all present, including 24 battleships, of which four were of the *Dreadnought* type (the *Dreadnought* herself, *Bellerophon*, *Superb*, and *Temeraire*), and the three so-called *Dreadnought* cruisers *Indomitable*, *Inflexible* and *Invincible*.

His late Majesty held the rank of Admiral *à la suite* in the Russian, German, Spanish, Swedish, and Greek Navies.

Home. The following are the principal appointments which have been made: Captains—C. J. Eyres to "Tamar," as Commodore, 2nd Class, at Hong Kong; J. Luce to "Hecla"; J. De M. Hutchison, C.V.O., C.M.G., to "Victory," as Flag-Captain to Admiral the Hon. Sir A. G. Curzon-Howe, Commander-in-Chief at Portsmouth; H. I. Savill to "Niobe"; H. M. Doughty to "Sutlej." Commander—R. G. Stapleton-Cotton, M.V.O., to "Pelorus."

Admiral Sir A. Fanshawe, G.C.V.O., K.C.B., hoisted the Union at the main on the 30th ult., on board the *Victory*, on his promotion to Admiral of the Fleet; on the same day he transferred the command at Portsmouth to his successor, Admiral the Hon. Sir A. G. Curzon-Howe, G.C.V.O., K.C.B., C.M.G., and his flag was hauled down at sunset.

The first-class battleship *Exmouth*, flying the flag of Admiral the Hon. Sir A. G. Curzon-Howe, arrived at Portsmouth on the 24th ult. from the Mediterranean; Sir A. G. Curzon-Howe's flag was transferred to the *Victory* on the 1st inst., and the flag of Admiral Sir E. S. Poë, K.C.B., K.C.V.O., the new Commander-in-Chief in the Mediterranean, was hoisted in its place; the *Exmouth*, flying the flag of Sir E. S. Poë, sailed from Portsmouth on the 5th inst. for her station.

The first-class armoured cruiser *King Alfred*, flying the flag of Vice-Admiral the Hon. Sir H. Lambton, K.C.B., K.C.V.O., arrived at Portsmouth on the 11th ult. from China; Sir H. Lambton's flag was struck at sunset, and the *King Alfred* will pay off at that port.

The first-class armoured cruiser *Bacchante*, flying the flag of Rear-Admiral Sir H. B. Jackson, K.C.V.O., F.R.S., commanding the Sixth Cruiser Squadron, arrived at Chatham from the Mediterranean on the 25th ult.; she paid off on the 2nd inst., recommissioned on the following day for a further term of service, and left, flying Sir H. B. Jackson's flag, on the 7th inst. to return to her station. The first-class armoured cruiser *Suffolk* arrived at Devonport on the 25th ult. from the Mediterranean; she paid off on the 2nd inst., recommissioned the following day for a further term of service in the Mediterranean, and left on the 7th inst. to return to her station.

Home.

The first-class battleship *Collingwood* commissioned on the 19th ult. at Devonport for service with the First Squadron of the Home Fleet.

The first-class armoured cruiser *Argyll* has been temporarily detached from the Fifth Cruiser Squadron and has proceeded to Buenos Aires for the celebration of the Centenary of the Declaration of Independence by Argentina, which is to be commemorated at Buenos Aires during the week beginning on the 24th inst. She will join there the second-class cruiser *Hermes*, flagship of Vice-Admiral G. Le C. Egerton, C.B., Commander-in-Chief of the Cape Squadron, under whose orders the visiting ships will be, the third vessel being the third-class cruiser *Amethyst*, which is employed on the South-East Coast of America and West Coast of Africa

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Results of Gunlayers' Test, 1909.—The Admiralty recently issued the result of the test of gunlayers with heavy guns in the Fleet during 1909. (Admiralty Gunnery Branch, No. 467.)

Their lordships in a note to the document express their satisfaction that the standard of shooting which was attained in 1908, and which was in advance of that of former years, has been maintained, with the result that the usual tabular statement is given showing the general improvement in marksmanship since the year 1900, and bringing out the circumstance that in 1905 an excess of hits over misses was first recorded with the old pattern target. An excess of misses over hits was registered in 1907 when the new target first came into use, but hits outnumbered misses in the following year, and the excess of hits was larger again in 1909. The abstract of the firing for 1909 which appears on the second page of the return shows the China station first in order of merit, with the best ship of the squadron, the *King Alfred*, the flagship of the Commander-in-Chief. The second place in the list is taken by the Home Fleet, Third Division and Third Cruiser Squadron, with the *Illustrious* as the leading ship. The third place in order of merit is taken by the Home Fleet Second Division and Second Cruiser Squadron, with the *Natal* as best ship. The other fleets or squadrons follow in rotation:—Atlantic Fleet and Fifth Cruiser Squadron; Mediterranean Fleet and Sixth Cruiser Squadron; Cape of Good Hope Squadron; Australian Squadron; the Special Service ships and tenders; Home Fleet First Division and First Cruiser Squadron; Fourth Cruiser Squadron; and East Indies Squadron.

In the table which gives the firing by the different descriptions of guns, the *Superb* stands first in order of merit with the 12-inch gun; the *Temeraire* comes next, and the *Dreadnought* third. All these vessels belong to the Home Fleet First Division. The table, which gives the Fleet classified in order of merit of ships competing, places the *Natal* first, *King Alfred* second, and *Bedford* third, the best shots in these ships being Petty Officers H. Fincken and G. Eaton, Chief Petty Officer A. James and Gunner R. Scutchings, R.M.A., and Petty Officer F. Free. Altogether 118 ships took part in the test.

The award of the medal will be promulgated in due course.

Home.

—	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.
Number of ships that fired ...	121	127	139	134	108	100	89	121	117	116
Number of guns or turrets ...	1,031	1,137	1,241	1,296	1,171	1,096	1,073	1,365	1,277	1,312
Number of hits ... 1906 target	2,732	3,562	4,789	5,996	5,748	4,374	5,733	7,547		
Number of hits ... 1907 „								4,073	4,826	5,108
Number of misses 1906 „	5,709	6,244	6,863	7,028	7,664	3,357	2,328	1,991		
Number of misses 1907 „								5,465	4,183	4,330
Excess of hits over misses 1906 „	Nil	Nil	Nil	Nil	Nil	1,017	3,405	5,556		
Excess of hits over misses 1907 „								Nil	643	778
Excess of misses over hits .. 1906 „	2,977	2,682	2,074	1,032	1,916	Nil	Nil	Nil		
Excess of misses over hits .. 1907 „								1,392	Nil	Nil
Percentage of hits to rounds fired 1906 „	32·3	36·3	41·1	46·04	42·86	56·58	71·12	79·13		
Percentage of hits to rounds fired 1907 „								42·70	53·57	54·12
Hits per gun per minute:—										
12-inch and 10-inch ... 1906 target	·30	·33	·38	·53	·47	·58	·81	·61		
12-inch and 10-inch ... 1907 „								·40	·56	·63
9·2-inch ... 1906 „	·22	·31	·35	·70	·73	1·40	2·84	3·25		
9·2-inch ... 1907 „								2·01	2·20	1·94
7·5-inch ... 1906 „								3·48		
7·5-inch ... 1907 „								1·58	2·51	2·47
6-inch B.L. and Q.F. ... 1906 „	1·51	1·81	2·41	2·63	2·63	4·14	5·68	5·93		
6-inch B.L. and Q.F. ... 1907 „								3·32	3·98	4·03
4·7-inch Q.F. and 4-inch B.L. and Q.F. 1906 „	1·60	1·93	2·02	2·47	2·28	3·73	4·96	5·73		
4·7-inch Q.F. and 4-inch B.L. and Q.F. 1907 „								2·38	3·32	4·06
Number of ships from whom no returns were received.	29	47	19	30	43	Nil	Nil	3	8	10

Abstract, 1909.

Order of Merit.	Fleet or Squadron.	No. of Ships.	No. of Men Firing	Points per Gun or Turret.	First Ship in Fleet.	Scores.
1	China	5	64	68·691	*King Alfred* ...	79·21
2	Home Fleet, Third Division and Third Cruiser Squadron.	26	291	49·872	*Illustrious* ...	64·27
3	Home Fleet, Second Division and Second Cruiser Squadron.	15	208	48·613	*NATAL* ...	89·44
4	Atlantic Fleet and Fifth Cruiser Squadron.	12	170	47·182	*Albemarle* ...	65·36
5	Mediterranean Fleet and Sixth Cruiser Squadron.	14	186	43·810	*Medea*	61·34
6	Cape of Good Hope	3	29	41·984	*Hermes*... ...	48·65
7	Australia	7	72	40·912	*Encounter* ...	62·06
8	Special Service, Tenders, etc. ...	13	63	40·702	*Bramble* ...	62·37
9	Home Fleet, First Division and First Cruiser Squadron.	16	186	37·188	*Superb* ... / *Temeraire* ...	71·21
10	Fourth Cruiser Squadron	3	24	33·554	*Scylla*	38·72
11	East Indies	2	19	31·720	*Hyacinth* ...	44·48
	Total, 1909 Test	116	1,312	46·098		
	Total, 1908 Test	117	1,277	45·775		
	Difference	1	+35	+0·323		

NOTE.—The 4-inch guns of *Bellerophon* and *Invincible* classes are not included in this abstract.

France. The following are the principal appointments which have been made:—

Capitaines de Vaisseau—M. A. Cros to Rear-Admiral; P. A. Ronarc'h to "Furieux" and command of the Ocean Destroyer and Submarine Flotillas; L. E. Sagot Duvauroux to "Pothuau"; E. P. A. Guépratte to "Edgar-Quinet." Capitaines de Frégate—A. F. J. Banon to Capitaine de Vaisseau; H. Salaün to command of 1st Ocean Submarine Flotilla; A. F. E. Sérès to "Mousquet" and command of 1st Torpedo Flotilla in China; F. M. J. Costet to command of Lorient fixed defences; A. M. Van Gaver to "Claymore" and command of 1st Destroyer Flotilla of 1st Squadron.—*Journal Officiel de la République Française.*

Rear-Admiral Cros has been selected to represent the French Republic at the Centenary fêtes to be held during the current month at Buenos Aires in celebration of the Independence of Argentina. Rear-Admiral Cros hoisted his flag on the 20th ult. at Brest on board the first-class cruiser *Guichen*, and is expected to arrive on the 17th inst. at Buenos Aires.

The protected cruiser *Château-Renault*, 8,018 tons, which recently went ashore on the Moroccan Coast, two miles south of Cape Spartel, was commanded by Capitaine de Frégate Méléart, and was on passage from Brest to Toulon, but had gone a little out of her course to land her surgeon at Tangiers, who was seriously ill. The cruiser *Du Chayla* went immediately to her assistance, and the British cruiser *Cornwall* and tugs were also despatched from Gibraltar, and by their united efforts the *Château-Renault* was got off and taken to Gibraltar to be docked.

It is reported the accident was due to a mistake caused by a recent alteration in the light on Cape Spartel from a fixed to a revolving light, of which the Captain had not had notice. The *Victor Hugo* has since been sent to tow the *Château-Renault* from Gibraltar to Toulon, where it is said the damage is ascertained to be more serious than at first reported, the rudder being thrown out of line and a part of the stern-post and also false keel being missing; the repairs will take a considerable time.

The *Temps* says:—"We must congratulate all those who co-operated in the salvage of the *Château-Renault*, and our thanks are particularly due to the English cruiser *Cornwall*, which arrived very few hours after the accident, showing a fine example of naval solidarity and comradeship."

Captain de Kergrohen de Kermadio, who was in command of the *Ernest Renan* when she recently went ashore at Bizerta, has been held responsible for the accident and dismissed his ship by the Minister of Marine. In such cases, in the French Navy, it is not considered necessary to try an officer by Court-martial unless he loses his ship, the Minister of Marine usually taking action under Article 275 of the Code de Justice Militaire, worded as follows:—"The Commander of any ship of war, who shall negligently or carelessly allow himself to be surprised by the enemy or shall run his ship ashore, shall be punished by dismissal from his ship." The *Temps* nevertheless considers it questionable whether the action of the Minister of Marine is strictly legal.

France.

In the *Tir d'honneur* for 1909 the battleship *Démocratie* is classed first on the list and Captain Moreau in command has been complimented by the Minister of Marine, while the Gunnery Lieutenant Stapper has been recommended for the Legion of Honour, and other officers have received official letters of approval.

The *Léon Gambetta* is classed second, the *Gaulois* third, the Galilée fourth, *Dupetit-Thouars* fifth, and the *Charlemagne* sixth. The challenge cup presented by the "Academie des Sports," held at present by the *Jauréguiberry*, *Démocratie*, and *Léon Gambetta*, will now be held by *Démocratie*, *Gaulois* and *Léon Gambetta*.—*Le Temps* and *La Vie Maritime*.

The New Constitution of the Fleet.—The following are some of the Articles of the new Law[1] fixing the future strength of the fleet; the new programme is to be completed by 1919 :—

Article 1.—The composition of the fleet is as follows :—

1. Battle Fleet:
   - 28 Battleships forming 4 squadrons of 6 ships and 4 in reserve;
   - 10 Squadron Scouts in the proportion of 2 to each squadron and 2 in reserve;
   - 52 Sea-going Torpedo Vessels in the proportion of 12 to each squadron and 4 in reserve.
2. Ships for Foreign Naval Divisions:
   - 10 Vessels for foreign stations, with despatch vessels and gunboats, as may be found necessary.
3. Submarine Defences:
   - 94 Submarine vessels;
   - 4 Parent Ships and Mine-layers.
   - Vessels for mine sweeping as may be found necessary.
4. Special Service Ships:
   - 3 Surveying ships;
   - 3 Transports.

School-ships and Fishery-service vessels as may be found necessary.

Article 2.—The maintenance of the fleet at the strength determined on will be assured by the replacing of units when they attain the

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[1] In addition to this Law, a special Act will be submitted to Parliament authorising the laying down in 1910 of two battleships and for making the necessary preparations for laying down two other battleships in 1911. Four and a half million francs (£180,000) will be asked for in the Budget for 1910 for the two first battleships. The necessary credits for carrying out the new programme will amount to one milliard 400 million francs (£56,000,000), to be distributed over ten Budgets and will include the ordinary grants. The new Law was laid before the Chamber on the 9th February and remitted to the Navy Committee. M. Chaumet, the Reporter of the Committee, submitted his Report on the 23rd ult., which is being considered by the Chamber.

France.

limit of age fixed for each type of ship for war service in accordance with Article 3.

Article 3.—Save in case of loss—

The *battleships* and the *ships for distant stations* laid down anterior to the year 1909, are to be replaced at the end of 25 years; the *battleships* and the *ships for distant stations* laid down after 1909 will be replaced after 20 years.

The *scouts* are to be replaced at the end of 20 years.

The *torpedo-vessels* and *submarines* are to be replaced at the end of 17 years.

The maximum length of existence of other ships of other types is fixed for each unit, according to its state of wear.

The maximum length of existence counts from the date of the order for it to be laid down or the notification of the approval of the contract of the unit to be constructed, to finish at the date of the completion of the ship to replace it.

The replacing unit is to be laid down in time to allow of her being commissioned at the date when the ship she replaces reaches the age limit.

In the case of the loss of a ship, the ship intended to replace her is to be laid down in the course of the following year at the latest.

The Status in regard to the Manning of Ships.

Article 4.—

1. *The Battle Fleet.*—The battleships are to be divided into two fleets.

In each fleet, the battleships of one squadron, at least, will be always kept fully manned. The other battleships will, in principle, be manned with reduced crews. The scouts on active service in the squadrons will be kept fully manned. The scouts in reserve will be manned with reduced crews.

At least two flotillas of 12 sea-going torpedo vessels each will be kept fully manned. The other sea-going torpedo vessels will be kept manned with reduced crews.

2. *The Ships on Distant Stations.*—The station ships, despatch vessels, and gunboats on service on foreign stations will be always kept with full complements.

When not on active service abroad these ships will be manned by a complement of not less than a fourth of their normal effective.

The Submarine Fleet.—The half of the torpedo coastguard vessels still on service will be kept fully manned; the other half will have reduced complements.

The submarines will be kept fully manned.

Special Service Vessels.—The special service vessels will have, during time of peace, their special complements fixed by the Minister of Marine.

Settlement of the Complements of Ships.

Article 5.—The Minister determines the effective complement for each type of ship, as also the complements for the ships in commission with reduced complements (*effectifs reduits*), which are defined in Article 6.

France

Article 6.—The reduced complements of the *battle fleet* are to include at least three-fifths of the gunnery and engineer *personnel*, and half the full strength of the other branches.

The effectives of the units with reduced complements of the *battle fleet* and of the *submarine defence fleet* can be brought up to full strength by Ministerial Order. Once a year, at a date fixed by the Minister of Marine, the reduced crews of the *battle fleet* can be brought up to full strength by means of the reserves called out under the conditions provided by the Law for manning the fleet.

The Maintenance of the Effective Strength.

Article 7.—Each year the Estimates are to provide for the maintenance of the following *Personnel*:—

1. The necessary strength for keeping in commission the vessels indicated in Articles 4, 5 and 6 of the present Law;
2. The effectives of the school ships;
3. The necessary *Personnel* for the service of the shore establishments;
4. An additional strength of 5 per cent. of the total effective of the three preceding categories.

—*Extrait du Projet de Loi sur la Constitution de la Flotte.*

United States.

The Navy Year Book.—The general character of this work has been shown by the notices heretofore published of previous volumes. In the volume the tables follow the acts of Congress affecting the Naval Service. It appears that the total appropriations for the Navy from 3rd March, 1883, to 3rd March, 1909, were $1,577,877,333.24, an average for the twenty-seven years of $58,439,901.23. The 201 vessels authorised during this period had a total displacement of 948,961.33 tons. The total cost of the twenty-six battleships, with equipage, including armament, was $158,520,141.31; of the twelve armoured cruisers, $66,797,614.08; of the eighteen protected cruisers, $43,828,683.54; of the three unprotected cruisers, $3,791,312.54; of the three scout cruisers, $5,726,105.82; of the ten monitors, $22,218,309.12; of the seventeen gunboats, $8,970,541.84; of the four training ships, $1,713,806.22; of the torpedo-boats, torpedo-boat destroyers, and submarines, $14,078,347.73; of the worthless ram *Katahdin*, $1,599,858.20; and of the lost *Maine* and *Charleston*, $6,277,646.95. The total cost of all vessels of the new Navy, built and building under appropriations for "Increase of the Navy," to 30th June, 1909, was $367,273,407.28. For navy yards, stations, public works, etc., under Bureau of Yards and Docks, we paid during this period $34,078,810.60; for yard improvements, $24,229,722.60; for repairs and preservation, $10,529,349.74; for maintenance, $11,992,205.74. The average cost of maintenance of vessels of each type which have been in commission during the entire fiscal year 1909 is as follows: Battleships, $692,580.90; armoured cruisers, $766,340.65; scout cruisers, $325,255.28; cruisers, first class, $496,341.40; cruisers, second class, $163,677.86; cruisers, third class,

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$247,876.60; gunboats, $155,583.30; torpedo-boat destroyers, $82,673.35; torpedo-boats, $39,503.02; submarine torpedo-boats, $24,657.47. The oldest ships in our Navy are the *Indiana* and *Texas*, fourteen years old; the *Massachusetts* and *Oregon*, thirteen years; the *Iowa*, twelve; the *Alabama*, *Kearsage*, and *Kentucky*, nine; the *Illinois* and *Wisconsin*, eight; the *Maine*, seven; the *Missouri*, six, and the *Ohio*, five. The latest average prices per ton paid for armour are as follows: Japan, $400; Austria, $449; Italy, $521; Germany, $450; France, $569; England, $626; United States, $423.

Launch of New First-class Battleship "Utah."—The new first-class battleship *Utah* was launched on the 23rd December last from the Yard of the New York Shipbuilding Co., Camden, New Jersey.

The *Utah*, which is a sister ship to the *Florida*, now nearing completion at the New York navy yard, is 521½ feet long, 88 feet 2½ inches wide, and on a normal displacement of 21,825 tons her draught is 28 feet 6 inches. At normal displacement, it should be explained, she will have a full supply of ammunition, and two-thirds of full supply of stores and fuel. The ship is an enlarged and improved *North Dakota*, with 3 feet more beam, 1 foot 7 inches more draught, and 1,825 tons additional displacement. She is equipped with 4-screw Parsons turbines of 28,000 horse-power, which are designed to give her a contract speed of 20·75 knots. She will carry 2,500 tons of coal and 400 tons of oil fuel, and steam will be supplied by boilers of the Babcock & Wilcox type. The *Utah* will be manned by 60 officers and 954 men, her total complement being 1,014. This is about the number of men that were carried on the old wooden three-deckers of the largest size, and in this ship for the first time the crew of a modern battleship equals that of one of the olden days.

Like the *North Dakota* and *Delaware*, the *Utah* carries ten 12-inch guns in the main battery. They are mounted in pairs in balanced turrets, the disposition of which is shown very clearly in our engraving of the ship. The foremost pair of guns has an elevation of about 33 feet above the normal waterline. The second pair has a command of about 40 feet. The guns of turret number 3 have a command of about 32 feet, and those in numbers 4 and 5 of about 25 feet. All of the guns being mounted on the centre line, they can all be trained on either broadside. Dead ahead the *Utah* can fire four 12-inch guns, and the same number dead astern. It will thus be seen that maximum broadside fire is gained at the expense of end-on fire, for the *Minas Geraes*, recently built for the Brazilian government, can fire eight guns ahead or astern, and the German and British battleships six guns. Most of the fighting, however, in all probability, will be done broadside to broadside; and the centre line disposition, which originated in the Bureau of Construction and Repair, is probably the most effective that can be adopted.

The secondary battery consists of sixteen 50-calibre 5-inch guns. Eight of these are carried on the gun deck within a central battery; four aft on the same deck; two in sponsons upon the main deck just abaft of the bridge, and another pair on the same deck well forward toward the bow. This gives a broadside of eight 5-inch and an end-on fire of four 5-inch ahead and astern.

United States.

The protection of the hull, both below and above water, and of the guns is exceptionally well worked out in these vessels, being in this respect an improvement even on the *North Dakota* herself, one of the best protected ships ever built. In the first place, with a view to limiting the destructive effects of a torpedo blow, particular attention has been paid to the question of cellular and compartmental subdivision. Even in the event of most serious underwater injury, such as might be done by a floating mine, the ship is able to concentrate on any compartment or set of compartments such a great capacity of pumps, that she would be able, by the aid of these alone, greatly to mitigate the effects of such a blow.

The armour plan of the *Utah* is probably the most complete and effective yet put upon any ship. The main belt, over 8 feet wide, has an average thickness amidship of 11 inches. Above this is a second belt 8 feet wide of an average thickness of 9 inches. The lower waterline belt is continuous from stem to stern, and the upper belt extends from the wake of the forward to the wake of the aftermost turret. The turrets of the 12-inch guns have from 12 to 8 inches of protection. The 5-inch secondary battery amidships is protected by 6½ inches of armour, and a similar thickness protects the casemates of the six guns at the bow and stern. Between each pair of 5-inch guns is a splinter bulkhead of 2-inch armour and back of each battery is a longitudinal wall of 3-inch armour, which closes in each 5-inch gun. To reach the base of the smokestacks any shell would have to pass through 9½ inches of armour—a superb protection.

The ship is provided with two of the new lattice-work fire-control masts with which all our latest ships have been equipped. The handling of the boats is done by two boat cranes placed abreast of each other, one on either side of the after smokestack. In this ship, as in all our *Dreadnoughts*, the officers are berthed on the main deck forward below the forecastle deck, the crew accommodation being aft. This places the officers near the bridge and conveniently to their post of duty.

The keel of the *Utah* was laid 15th March, 1909, so that considerably less than a year has elapsed between the laying of the keel and the launch. In less than a year from the present time, if all goes well, this fine ship will have her trials, a speed in warship construction which is greatly to the credit of the New York Shipbuilding Company. Particular interest will attach to the trials of this vessel, for the reason that she will be the first of American battleships to be propelled by 4-screw Parsons turbines.—*Scientific American.*

MILITARY NOTES.

KING GEORGE'S MESSAGE TO THE ARMY.

His Majesty the King has been graciously pleased to issue the following message to the Army:—

MARLBOROUGH HOUSE,
May 9th, 1910.

My beloved father was always closely associated with the Army by ties of strong personal attachment, and from the first day that he entered the Service he identified himself with everything conducive to its welfare.

On my accession to the Throne I take this the earliest opportunity of expressing to all ranks my gratitude for their gallant and devoted services to him.

Although I have always been interested in the Army, recent years have afforded me special opportunities of becoming more intimately acquainted with our forces both at home and in India, as well as in other parts of the Empire.

I shall watch over your interests and efficiency with continuous and keen solicitude, and shall rely upon that spirit of loyalty and devotion which has in all times animated and been the proud tradition of the British Army.

GEORGE R.I.

HIS LATE MAJESTY KING EDWARD VII. AND THE ARMY.

His late Majesty's connection with the Army was a very close and personal one, dating back to the year 1858, when, on his 18th birthday, he was made a Colonel. His first public act was a military one, when on the 10th January, 1859, he presented their first Colours to the present 1st Battalion Leinster Regiment (Royal Canadians) at Shorncliffe, and on the 10th September, 1861, he performed a similar ceremony for the present 2nd Battalion of the Worcestershire Regiment, then stationed at the Curragh, where he was temporarily doing duty on the Staff. His Majesty was more closely connected with the Grenadier Guards and the 10th Hussars than perhaps with any other regiments, having been gazetted to and done regimental duty with both; of the latter regiment he was appointed Colonel as long ago as 1863. He was promoted to General on the 9th November, 1862, and made a Field-Marshal on 29th May, 1875. He ever showed the deepest interest in all military matters, and since his accession to the Throne he has invariably spent a day at Aldershot with the troops each summer.

The following is a list of the regiments of which His late Majesty was Colonel-in-Chief :—

Regular Army.—1st and 2nd Life Guards, Royal Horse Guards, 10th (Prince of Wales's Own Royal) Hussars, Royal Regiment of Artillery, the Corps of Royal Engineers, Grenadier Guards, Coldstream Guards, Scots Guards, Irish Guards, The King's Own (Royal Lancaster Regiment), Norfolk Regiment, Gordon Highlanders.

Yeomanry.—Duke of Lancaster's Own, Norfolk (The King's Own Royal Regiment), Oxfordshire (Queen's Own Oxfordshire Hussars).

His Majesty was also Captain-General and Colonel of the Honourable Artillery Company and Hon. Colonel of the following : 3rd (Special Reserve) Battalion the Duke of Cornwall's Light Infantry, 3rd (Special Reserve) Battalion the Gordon Highlanders, 4th (Special Reserve) the Prince of Wales's Own (West Yorkshire Regiment), the Royal Malta Artillery, and the following Territorial battalions : 5th Battalion Seaforth Highlanders (Sutherland and Caithness Highland Battalion), 8th (City of London) Battalion (Post Office Rifles), 15th (County of London) Battalion (Prince of Wales's Own Civil Service Rifles), 6th (Glamorgan) Battalion the Welsh Regiment, the Officers' Training Corps, and Cambridge University Battalion (Suffolk Regiment).

Indian Army.—Colonel-in-Chief: 6th King Edward's Own Cavalry, 11th King Edward's Own Lancers (Probyn's Horse), 33rd Queen's Own Light Cavalry, Queen's Own Corps of Guides (Lumsden's), 2nd Queen's Own Sappers and Miners, 2nd Queen's Own Rajput Light Infantry, 102nd King Edward's Own Grenadiers, 2nd King Edward's Own Gürkha Rifles (The Sirmoor Rifles).

Colonial Corps. — Colonel-in-Chief : Transvaal Scottish Volunteers. Hon. Colonel : Ceylon Volunteers, 1st Canadian Regiment (Prince of Wales's Fusiliers).

His Majesty was also a Field-Marshal in the Austro-Hungarian and German Armies, a Captain-General in the Spanish Army, and a General in the Danish, Norwegian, and Swedish Armies, and was also Honorary Colonel of the following foreign regiments : 12th Austro-Hungarian Hussar Regiment, 27th (H.M. King Edward VII.'s) Kieff Regiment of Russian Dragoons, the Danish Hussars of the Guard, Portuguese Cavalry Regiment No. 3, 8th Zamora Regiment of Spanish Infantry, Colonel-in-Chief 1st Prussian Regiment of Dragoon Guards and 5th Pomeranian (Blücher) Hussars.

Home. The following are the principal appointments which have been made :—Colonels—G. P. Bourcicault to be Director of Supplies at the War Office, with temporary rank of Brigadier-General; W. L. White to be Inspector of Royal Garrison Artillery, with temporary rank of Brigadier-General; H. K. Jackson, D.S.O., to Command Royal Artillery (Second Division, Aldershot Command); V. A. Couper to be Inspector of Gymnasia; M. J. Edye to be Assistant Director of Supplies and Transport (Irish Command).

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Territorial Force.—Major-Generals—J. Spens, C.B., to Command Lowland Division (Scottish Command); F. H. Plowden, C.B., to Command Northumbrian Division (Northern Command).

Indian Army.—Colonel W. G. Hamilton to be Deputy-Adjutant-General.

Précis of the Annual Report of Recruiting for the Year ending 30th September, 1909. Army, Militia, Imperial Yeomanry and Special Reserve.—The Report is divided under five headings:—

I.—Recruiting for the Regular Army and Special Reserve.

II.—Army Reserve.

III.—Special Reserve.

IV.—Civil Employment of Men who have served in the Army.

V.—Concluding Remarks.

I.—Recruiting.

1. *Recruits for Regular Army.*—The number of recruits who joined the Regular Army during the period under review, excluding 60 re-enlisted men and 437 recruits for Colonial Corps, was 33,837, a decrease of 3,338 as compared with the twelve months immediately preceding.

2. *Cause of Decrease.*—The decrease is to be attributed solely to fewer recruits being required to maintain the Army at its establishments. The reason for this will be seen on reference to paragraph 55. It was only in finding skilled tradesmen for the Royal Engineers that any difficulty was experienced. On the other hand, recruiting for many regiments of Cavalry and for the Royal Horse Artillery was practically closed for several months, and it was necessary to raise standards from time to time, almost to exclusion point, so as to reduce the number of recruits offering for the Infantry and most other branches.

3. *Recruits for Special Reserve.*—The recruits, excluding re-enlisted men, who joined the Special Reserve during the period under review were 26,157, an increase of 153 as compared with the numbers who joined the Militia and Special Reserve during the twelve preceding months.

II.—Army Reserve.

18. *Army Reserve.*—During the period under review the strengths of Sections A and D of the Army Reserve fell by 13 and 3,434 respectively, and that of Section B rose by 4,054. The total strength, therefore, increased by 607, and on 1st October, 1909, stood at 134,556. The only arms or branches of the Reserve showing a decrease are the Infantry of the Line and Colonial Corps. In the case of the former the loss in strength is mainly attributable to enlistment and re-engagement in Section D having been closed to Infantry Reservists during the whole year, and to the transfer of a number of Infantry Reservists to the Reserve of the Royal Army Medical Corps. In the case of Colonial Corps, the

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falling off is accounted for by the reduction of the establishment of the Royal Malta Artillery carried out in 1905.

III.—Special Reserve.

23. *Recruiting for Special Reserve.*—As the conditions of service become better known, the Special Reserve is becoming more popular. Progress in recruiting this branch of the Reserve was satisfactory, and in every arm which existed at the opening of the year, except the Royal Field Artillery and Royal Engineers, there has been an increase of strength. In the Royal Engineers the decrease was very small. In the Royal Field Artillery it was more considerable, but it was entirely in gunners, the class which could best be spared, since, as has been implied already, the number of gunners who turned over to the Special Reserve from the Royal Garrison Artillery Militia was greatly in excess of that required under the new organization. It was also found that many of the men transferred were not suited for Field Artillery.

24. *Enlistment of Special Reservists into the Regular Army.*—In the earlier months of the year recruiting was so active that it became necessary in March to suspend the special permission to enlist in the Regular Army which had been granted to Special Reservists who had completed three months' recruits' training and were 18 years old. Special Reservists who had completed their six months' recruits' training remained eligible to join the Regular Army, even though under 18 years of age.

25. *Reorganization of Royal Field Reserve Artillery.*—The decision to add to the strength of the regular Army Reserve for the Royal Field Artillery led to re-consideration of the organization of the Artillery introduced in December, 1907. It was recognized that the number of Special Reservists then allotted to the Royal Field Artillery will no longer be required. Modifications of the original scheme were therefore embodied in a Special Army Order published in March, 1909. These included provisions for the eventual reduction of the establishment of the Royal Field Reserve Artillery to 6,000, for the maintenance of 6 Training Brigades only, and for the amalgamation of the county units of this branch of the service to form a general Reserve for each of the six regular Divisions at home. This amalgamation involved the disbandment of the then existing county units of the Royal Field Reserve Artillery, since carried out. The reduction of the establishment to 6,000 is being made gradually, as the measures taken for increasing the 1st Class Army Reserve produce effect.

The terms of service, standards of height, and age, and the pay and allowances of men enlisted for the Royal Field Reserve Artillery under the new organization are identical with those previously in force, with the single exception that recruits enlisted since the 31st March, 1909, are not permitted to pass on to the Regular Army.

26. *Special Reserve Categories* (a) *and* (b).—In the Special Army Order of 23rd December, 1907, which originated the Special Reserve, it was explained that the men required would fall into two categories:—

(*a*) Those who must be trained as soldiers and instructed in technical methods peculiar to military service;

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(*b*) Those whose duties in the service will be cognate to their occupations as civilians and who, consequently, need little instruction as soldiers.

It was pointed out that combatant units, such as Infantry, Artillery, and Siege and Railway Companies of the Royal Engineers, which come into action at the opening of a campaign, should, if their efficiency is not to be impaired on mobilization, consist of Regular soldiers and Regular Reservists in due proportions. It was further stated that Special Reservists, whose training will be continuous after the outbreak of war, will be utilized in making good the wastage of these Regular combatant units.

To be fit to take their place amongst combatant troops Special Reservists of Category (*a*) must be trained in barracks and in the field, and the Army Order prescribed the manner in which this class of Reservists for the Artillery, Infantry, and certain Reserve Companies of Royal Engineers, only, would be raised, organized and trained. The issue of instructions regarding the provision of Special Reservists of Category (*a*) for other arms and branches, and of all Category (*b*) Reservists was postponed.

IV.—Civil Employment.

33. The organization for assisting time-expired and reserve soldiers to obtain employment in civil life remained unchanged during the year.

In view of the heavy work still falling on County Associations in connection with the development of the Territorial Force, it was considered that the time had not yet come for taking definite steps towards imposing on them the care of reservists and discharged soldiers, as provided for in the Territorial and Reserve Forces Act, 1907. In some instances, however, County Associations have voluntarily come forward and have rendered welcome and much appreciated help.

34. A new branch of the National Association for the Employment of Reserve and Discharged Soldiers has been opened, during the period under review, at Stoke-on-Trent.

General Remarks as to Civil Employment.

53. The following table records the number who left the Colours with Good, Very Good, or Exemplary characters, entitling them to registration for civil employment. The actual number for whom employment was found by means of Official Registers, by Departments under the War Office, other Public Departments, and by Employment Societies, is shown below :—

Number discharged or transferred to the Reserve with characters,	"Exemplary"	6,434
	"Very good"	9,332
	"Good"	5,203
	Total	20,969

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The number of men for whom employment was found was as follows :—

War Office Register (Messengers, &c.)	44
Regimental and Recruiting Officers' Registers (affiliated to National Association) and National Association (Branches)	6,931
National Association for the Employment of ex-Soldiers (London office only)	1,521
Soldiers' and Sailors' Help Society (London office only) ...	693
Army and Navy Pensioners' Employment Society	613
Guards' Employment Society	126
Departments under the War Office—	
Army Clothing Department	1
Works and Fortifications Department	68
Ordnance Factories	54
Army Service Corps Services	734
Army Ordnance Department	395
Clerks in War Office	28
Teachers, &c., in Army Schools	30
	1,310
To these may be added men who are known to have themselves obtained employment	9,023
General Total	20,261

It will be seen that the soldiers who returned to civil life from the Army during the year with characters entitling them to have their names registered, together with the number remaining on the Registers from the previous year, give a total of 28,855, and that of these 11,238 were provided with employment through various agencies, and 9,023 are known to have found themselves situations. In view of the condition of the general labour market during the past twelve months the results obtained may be considered as satisfactory.

V.—Concluding Remarks.

54. *Quality of Recruits raised.*—As has been stated in the opening paragraphs of this Report, there would have been no difficulty in raising a far larger number of recruits for all arms and branches, except the Royal Engineers, had they been required. From almost every part of the country, rural and industrial, it is reported that defective teeth cause the rejection of a growing proportion of those who offer themselves. In Scotland it is said that emigration was also largely answerable for the less favourable results obtained. The prevailing opinion amongst those who are in closest touch with the men is that the quality of recruits for the Regular Army is improving, and that the men enlisted last year were above the average in physique, education, and character. As regards recruits for the Special Reserve, it is the almost unanimous opinion that they are generally good and, if younger, superior all round, but especially in education and character, to the Militia recruits of former days. There is no question that they improve greatly in physique and development during their recruits' training. That they are young when compared

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with the Militia is because the men of 25 and upwards who used to enlist in that service do not offer themselves for the Special Reserve. Opinions differ as to the reason for this. Some hold that the older men are less frequently out of work, and cannot come up for six months' recruits' training without losing their employment. Others think that men who are not in regular work by the time they are 25 or so find it difficult to produce the character or reference required with every recruit.

In Part XI., statistics of the ages of recruits who joined the Special Reserve last year will be found in Table 5, page 108, and of the ages of all non-commissioned officers and men of the Militia and Special Reserve, for ten years, in Table 11, page 113.

55. The increase and decrease of each arm of the service in the Regular Army during the 12 months ended 30th September, 1909, is set out in Table 4, Part II., page 30. The increase and decrease of all arms combined for the last 10 years will be found in Table 5, page 32.

Comparing the figures for the last 2 years in the latter table, the most noticeable increases in 1908-9 were in recruits enlisted for 3 years and 6 years respectively. These increases were due, in the one case to the re-introduction of a 3-year term of service for the Royal Field Artillery, and in the other, to the normal increase of 6-year men required to replace 8-year men as the latter passed from the Royal Horse and Royal Field Artillery to the Army Reserve. On the other hand, it will be observed that the 7-year men who joined were fewer by 5,013. The greater part of this reduction was a consequence of 3,664 fewer having passed to the reserve on completion and on conversion of Army service. But a study of the Table will show that other causes materially contributed to diminish the waste of the Army. Amongst these were a reduction by 444 of the loss due to deaths and invaliding, by 199 of discharges for misconduct, by 417 of discharges by purchase, and by 242 of discharges at their own request of men who had completed less than 12 years' service. Discharges by purchase of recruits of less than 3 months' service, included in the discharges by purchase above-mentioned, fell by no less than 281, whilst discharges to support parents or for other sufficient special reason, not included above, rose by 52. The nett loss through desertion fell by 65. The difficulty of finding work in civil life was, probably, not without effect on the figures referring to men who voluntarily left the Army during the year; other figures, and those not the least satisfactory, were in no way influenced by that consideration. On the whole the comparison tends to show that the improved conditions of service in the Army are being generally recognised. In any case it can hardly be doubted that the reduction in the number of recruits of less than 3 months service who purchased discharge, considered in conjunction with the lower rate of desertion amongst young soldiers, mentioned in paragraph 58, gives grounds for assuming that a growing proportion of recruits and their families realise that they are better off in the Army than out of it.

62. *Special Reserve.*—The majority of men who enlist in the Special Reserve, do so in the hope of improving their physique to the Line standards and of then passing on to the regular army. The possibility of attracting a class of men who will remain in the Special Reserve is a subject which is receiving attention, and it is hoped that such a class may yet be reached.

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63. *Physique of Special Reserve.*—The physical qualifications of Special Reserve recruits except in the matter of age, height, and chest measurement, for all of which the standards are slightly lower, are the same as for the Line, and both classes of recruit undergo the same Medical Examination. It is too early yet to say what the Special Reservists will become when all serving have joined under existing regulations, but it is confidently expected that they will be, physically and in point of fitness for the duties for which they are intended, an extremely serviceable body of men.

Advantages of the Army.—During the year a revised edition of the illustrated pamphlet, "Advantages of the Army," was put into circulation. The edition was prepared with the object of placing recent and authentic information regarding the conditions of a soldier's life in the hands of the public in an interesting form. The pamphlet is issued free of charge, and, to make it as widely known as possible, local authorities in all towns and villages are approached to obtain their co-operation in allowing copies to be placed in public reading-rooms and institutes, where they can be read by any person interested. Recruiting Officers are supplied with copies for distribution to employers of labour and others who wish to have them.

The pamphlet deals with such subjects, amongst others, as the general advantages to be derived from service in the Army, clothing, food, pay, pensions, prospects of promotion, obtaining commissions, furloughs, marriage, and the education, housing, and medical care of the soldier and his family. It sets forth in some detail, but without technicalities, all the facts connected with life in the Army at home and abroad, and contains illustrations connected with some of the foreign stations a soldier may visit during his service. No one who reads it can fail to be impressed by much he will learn of all that has been done in recent years to raise the moral, social, and material position and prospects of soldiers. The pamphlet is undoubtedly performing a useful work, for though it is primarily intended for the information of men who are thinking of enlisting, it is also reaching a wider section of the public and is spreading a more correct appreciation than has hitherto been common of the real conditions of life in the Army.

66. *Cavalry Depôts.*—In July last an Army Order was promulgated, under which a Cavalry Depôt will eventually be established in each of six Commands at home. The new organization will involve no alteration affecting the recruiting service. The linking of Cavalry regiments, which has been in force for some years, will remain unchanged, and recruits will continue to be enlisted as they have under existing regulations. Instead, however, of being sent as they now are direct to the regiments they select, if the regiments are at Home, or to the linked regiments if they are abroad, recruits will first be sent to the Depôts. There they will remain about 3 months and undergo a course of recruit training which will not include instruction in stable duty or equitation. From the Depôts they will proceed to their regiments at Home or their linked regiments, as the case may be, and will then complete their training as Cavalry soldiers.

67. *Disbandment.*—The Royal Garrison Regiment was disbanded on 30th September, 1908. Since that date the Non-Commissioned Officers

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and men of the regiment whose engagements have not expired have been attached for pay, equipment, clothing, rations, and discipline to units serving in South Africa, and a year later 68 were still serving.

68. *Technical Instruction.*—Men who were skilled tradesmen when they enlisted, who work at their trades as part of their military duty, and those whose duties teach them a trade, have less difficulty than others in finding employment when they leave the Colours. Unfortunately, applied to men whose Army Service has qualified them in various branches of work with horses this is not so true as it formerly was. But the classes mentioned are in a minority in the Army, and the main difficulty is with regard to the future of the men who joined the Service with little, or more often no, knowledge of any skilled trade. The great majority of soldiers belong to this class, and it was more especially to help them that the scheme for affording opportunities of technical instruction to serving soldiers was inaugurated. That scheme continued in operation during the year, and has done good work by qualifying a number of soldiers for certain employments which can be easily or quickly learnt. It has, for instance, been the means of getting many ex-soldiers situations as chauffeurs. Every endeavour is made to impress on men the importance of qualifying themselves to make their way in civil life, and it is on them, ultimately, that the scheme must depend for as full a measure of success as it is capable of.

F. R. C. Carleton, *Colonel*,
Assistant Adjutant-General for Recruiting.

Germany.

Military Aerostation.—The German Military Correspondent of the *Revue Militaire Suisse* points out that, in view of the many purely imaginative accounts which have been published of the work performed by military balloons at the last Imperial Manœuvres, it is as well to state what actually was effected. As a matter of fact, trials were made with only one dirigible, the "M II." (as the "Gross II." is officially styled), and it goes without saying that it is not possible to consider this trial as in any way decisive. It is most certainly wrong to affirm that the balloon greatly contributed to the strategic scouting of the cavalry, and that in particular it rendered very great services to the Commander of the "Blue" force by transmitting to him continuous and very complete reports of the movements of the enemy.

What is true is, that the dirigible did effectually cross the frontier of the "Red" side on the first day of the manœuvres in order to determine the direction of the enemy's march. But this is also certain that, after a short time, it met a strong gale accompanied by a good deal of rain, and that after having had one screw broken it was obliged to come to the ground in the fields; and it was only on the 15th September, after having undergone necessary repairs, that the "M II." was able to resume flying, so that during the two most important days, perhaps, of the manœuvres it could not render any service; during the three days that followed all that can be said is that it was able to manœuvre without coming to grief; it is, however, fair to say that the dense fog which prevailed compelled it to manœuvre at a low altitude in an attempt to

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be able to see anything. But, unfortunately, the very strict manœuvre regulations, which were rigorously enforced by the umpires, insist on a balloon attaining an altitude of at least 1,300 metres before its reports can be admitted.

This altitude has been adopted as the minimum at which a balloon can be considered safe from the risk of being hit by projectiles and placed *hors de combat*. On the other hand, it has to be admitted that enough is not yet known as to the effect of fire on balloons to allow of laying down precise rules on the matter, and it is therefore necessary to energetically protest against the assertions of those who contend that during the course of the manœuvres "M II." would have sustained grave injuries from the infantry and artillery fire; the trials that have been made up to the present, on the contrary, show that rifle bullets do but little damage to the envelope of the balloon, and, on the other hand, we do not yet know what will be the power of the guns which Krupp and Ehrhardt have constructed for use against balloons, as the trials have not yet been conclusive.

The extraordinary rapidity and ease with which the "Gross" disappeared in the mist when it seemed likely that some projectile might reach her, must also be recorded. Also that the wireless telegraphy apparatus with which she was fitted worked perfectly well, and that it was able to render some service to the Commander of the "Blue" force; in this respect "M II." showed herself superior to "Z III.," which should have taken part on the last day of the manœuvres with a similar apparatus; but it was found it would not work, for it is only quite recently that the attempt has been made at Friedericksbaven to adapt wireless telegraphy to dirigibles of the rigid type.

It may be as well to recall that the German dirigibles are of three distinct types: those of the rigid type ("Zeppelin"), the semi-rigid ("Gross"), and the non-rigid ones of Major Parseval. Major Parseval recently delivered a lecture in which he informed his audience of the present state of his balloons and announced he was making what would seem to be a very important innovation; he is substituting a semi-rigid screw for the non-rigid, which will perform the same work with less risk of injury. He further declared, in order to reassure all those who had been disquieted by the accident to the "République," that a similar accident could not occur with his system, as his screws revolve with a rapidity two and a half times slower, and even if one of the blades were to break and perforate the envelope of the balloon, the balloon could not in any case come rapidly to the ground, because with the non-rigid system the two extremities which have kept their gas take the weight and thus prevent a sudden fall. Up to the present seven "Parsevals" of from 1,200 to 6,700 cubic metres have been constructed, the largest of which covered last summer a total distance of 5,200 km. (3,231 miles), standing the wear and tear excellently; it has carried 13 passengers at a time, has attained an altitude of 1,100 metres (3,600 feet), has flown 361 km. (224 miles) without a stop, passed four nights without shelter in bad weather, and manœuvres, thanks to the reverse motions of her screws, with perfect ease. It is sensibly faster than the "Zeppelin," and Major Parseval is certain that he will exceed the speed of the "Gross," which at present holds the record. He moreover considers that his type is the best, because

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it is the lightest, stands wear and tear the best, is the strongest, and most easily transportable; but he fully recognises that there is room for numerous improvements in matters of detail, but he believes that taking everything it will be difficult to find a better. At the conclusion of his lecture the meeting unanimously affirmed their general confidence in the *non-rigid* system.

Volunteer Automobile Manœuvres.—This year the manœuvres of the Volunteer Automobile Corps will commence on the 11th inst. at Dresden and will be carried on for two days and a half as far as Vienna. German, Saxon and Austrian Volunteer Automobile Corps will take part; the Hungarian Corps was also to have done so, but have had to give it up owing to the inability to provide the necessary number of vehicles. The plan of the manœuvres has been elaborated by the German and Austrian General Staffs, but the arrangements have not yet been published. The tactical themes will probably be kept secret as in previous exercises of this kind.—*Revue Militaire Suisse.*

The Sanitary Condition of the Horses in the Prussian Army in 1908.—The following details are from the *Statisticher Veterinär-Sanitäts-Bericht über die preussiche Armee* for 1908, but only relate to the seventeen Prussian Army Corps and the XIIIth Corps (Wurtemburg). The total number of horses on service in 1908 in the eighteen Army Corps, to the 31st December, was 98,998. Out of this number, 48,330 were treated, being a proportion of 42·82 per cent. If this total number of sick horses is compared, not with the real effective, but with the Budgetary effective, which is 91,162, the proportion is 53·02 per cent.

If the number of sick horses and the proportion in comparison with the Budgetary effective for the last ten years are taken, we find the results as indicated below :—

Years.	Number of Sick Horses.	Percentage.
1898	29,857	38·74
1899	26,580	34·06
1900	32,996	40·71
1901	29,983	34·83
1902	30,677	35·37
1903	33,274	38·36
1904	32,918	37·95
1905	33,790	38·31
1906	40,204	45·12
1907	45,516	49·87

The proportion has thus been increasing since 1904. In 1908 it exceeds by 2·84 per cent. that of 1907, although this year there is a diminution of 7,031 cases of erysipelas.

This increase is principally due to an important recrudescence of diseases of the skin, members and hoofs; the maladies of the organs of digestion and the eyes have also increased.

The quarter of the year when there is the most disease is always the third, when the manœuvres take place (15,508 sick horses).

Germany

From the point of view of the absolute number of horses under treatment, the first place is taken by the Guard Corps with 4,177 cases, the last by the IIIrd Corps with 1,440, the mean number per Army Corps being 2,649 cases.

If we consider the proportion of the number of cases of illness to the Budgetary effective, the classing of the Corps and Establishments with the highest percentages is as follows :—

	Percentage.
Institute of Military Equitation	72·58
IVth Corps	67·51
VIth ,, ...	59·36
VIIth ,, ...	59·04
Guard ,, ...	50·06
XVIth ,, ...	49·74
XVIIth ,, ...	49·46
XIVth ,, ...	49·22

While the two units showing the lowest percentages are the *Field Artillery School of Firing* 28·83, and the IIIrd Corps 28·40.

The 48,330 cases are divided as follows as between the different arms in proportion to the real effective :—

Arms.	No. of Cases.	Percentage.
Cavalry	30,215	52·38
Field Artillery	14,233	44·41
Train	2,137	44·34
Groups of Foot Artillery Draught horses	544	42·19
Machine Gun Detachments	319	41·10
Institute of Military Equitation ...	331	72·58
Field Artillery School of Firing	235	29·48
Other Horses	306	27·64

Of the 48,330 horses treated in 1908 :—

		Percentage of Total Number of Sick.
Cured	44,370	91·80
Partly cured and rendered fit to serve	940	1·94
Cast	362	0·75
Died	1,171	2·42
Killed	382	0·79

There remained on the 31st December, 1908, 1,105 horses under treatment.

The largest proportion of these are suffering from disease of some member, next skin disease, then disease of the digestive organs, lastly disease of the hoofs and contagious maladies.—*Revue Militaire des Armées Etrangères.*

Re-organisation of Prussian Army, 1859-60.—In 1859, according to an article in the *Militär-Wochenblatt* (4th-6th January, 1910), the Prussian mobilised army consisted half of active army and half of *Landwehr*; *e.g.*, a brigade consisted of one Regular and one *Landwehr* regiment. The *Landwehr* was found wholly unsatisfactory.

Germany.

The Minister of War, in a Memorandum, described its state and advocated the break-up of its units and utilisation of the men as Reservists to complete Regular units. He said: "A superficial knowledge of the regulations and drill do not make a soldier, far less an officer. The most essential and most difficult duties of a soldier—commanding and obeying—cannot be acquired in a moment, but require continuous exercise and habit over a period of years. Officers who do not understand the most essential point—commanding—cannot naturally exact obedience, or at most can only coax a lagging obedience out of their troops, who, it cannot be concealed, are inclined to disobedience. All the above holds good of non-commissioned officers only in a higher degree."

* * * * * *

"There are no officers, no non-commissioned officers, as are known with the Regulars; no earnestness, no strictness, only kindness, exhortation and praise."

* * * * * *

"Endeavours at reform are difficult because of the over-estimation of the value of the services rendered by the *Landwehr* in the War of Liberation."

Prince William of Prussia (afterwards Emperor William I.) wrote, 8th November, 1858:—

"For these (changes) a period of political calm—and money—are required. And it would be a mistake which will bring its own punishment if we just make a show (*prangen*) with a cheap army organisation, which for this very reason would not answer expectations at the decisive moment. Prussia's army must be powerful and respected, so that when the time comes it can throw a preponderant weight into the balance."

As a result the army was reorganised, and the units of the active army increased in number so as to provide all the troops required for the first line.

Italy.

Military Aerostation.—On the occasion of the late visit of the French fleet to Naples the military dirigible balloon "No. I. *bis*" made in one journey the flight from Bracciano (close to Rome) to Naples and returned to Rome, thus covering 500 kilometres (310¾ miles) in about fourteen hours and twenty-five minutes. "No. I. *bis*" has a capacity of about 3,500 cubic metres (123,608 cubic feet), and is inflated with hydrogen gas. The interior is divided into seven compartments without communication between them; a ballonet charged with air forms an eighth compartment. The rigidity of the balloon is assured by a metal frame. The balloon carries normally four persons, but is able to convey eight. Its cost was about 200,000 francs (£8,000).

A Circular of the 20th January of this year directs the organisation of an aeronautic school which will be open to lieutenants of artillery and engineers on their application.

The conditions of the course will be as follows:—

1. The possession of a superior scientific and technical education which will allow of the course being followed with profit;

Italy

2. Candidates must submit to a medical examination to determine their physical fitness, they must enjoy an excellent eyesight, perfect hearing, and be free from any respiratory, nervous or cardiac troubles.

The course will consist of two parts :—

The first, theoretical (from 15th February to 30th April), will take place at Rome with the Engineer Specialist brigade. It will include a practical course of management of free spherical balloons, a course of construction of dirigibles (in particular the putting together and working of the motors and propelling apparatus and the manufacture of the skin);

The second, practical (from the 1st May to the 30th November) will be carried out at Vigna di Valle, to the north of Rome, where the garage for "No. I. *bis*" is. It will include courses of fitting and piloting of dirigibles.

The course will be followed by a period of embarkation on board a sailing ship of the Italian Mercantile Marine, during which the pupil-pilots will familiarise themselves with the working of sails and will develop their physical training.

Recruiting for the Corps of Colonial Troops for Erythrea.—A Ministerial Circular of the 25th January last lays down the following regulations for the recruiting of officers and men for the Colonial Corps of Erythrea :—

Officers.—The officers serve at their own request. They are nominated by the Minister, on the recommendation of the Commandant of the Colonial troops, after a favourable report by the Governor of Erythrea.

They are to be, in principle, celibates or widowers. Those who, by exception, should be married, must engage to leave their families in Italy during the length of their stay in the Colony. They must be proved physically fit; field officers producing a certificate from the Commandant of their Corps, while other officers must pass a special medical examination.

Soldiers.—The soldiers may be drawn from :—

1. Men on active service chosen by preference from among those who apply to serve in the Colony;
2. Men of the 1st Recruiting Category, who having completed their term of obligatory service with the colours, enter into a voluntary engagement to serve in the Colony (they must have already served at least ten months, have been freed from service not more than four years at the time of their engagement, have obtained a certificate of good conduct, and be physically fit for Colonial service);
3. Recruits residing in Erythrea or in a country nearer Erythrea than Italy, and who request to be allowed to join the Colonial troops;
4. Enlisted volunteers whose class has not yet been called up for service with the colours;
5. A limited number of soldiers belonging to some profession necessary for supplying the needs of the service in the Colony : armourers, farriers, saddlers, telegraphists, etc. (They are selected for service by the Commandant of the Xth Army Corps, and must have 18 months more of military service to complete).

Italy.

All these men must be celibates, be of good conduct, have the necessary physical qualifications, be under 30 years of age for corporals and privates, under 34 years for non-commissioned officers, with the exception of the carabineers, armourers, and the farriers, for whom there is no age limit.

Finally, men joining the Colonial troops at their own request must engage to serve for three years if they are carabineers, and for two years if belonging to other corps and branches of the service.—*Revue Militaire des Armées Etrangères.*

The War School: Conditions of Admission.—The admission to the War School is by means of competitive examination, for which captains and lieutenants of all arms with not less than four years' effective service are eligible—three years for artillery and engineer officers coming from the School of *Application*.

Up to the present the number of candidates admitted yearly has been 48 for the infantry and cavalry and 12 for the artillery and engineers. In case of there being an insufficient number of admissable candidates from one of these two groups, the number of candidates of the other group was increased, but by not more than six.

The examination papers consisted of four subjects, viz.: The Italian language; general history; tactics, military organisation or field fortification; topographical drawing.

The *vivâ voce* examinations included: general geography, arithmetic and algebra, geometry and rectilinear trigonometry, and French.

A recent Ministerial decision has raised the number of admissions without distinction of arms from 60 to 100, and has modified the programme of the examination.

The examination papers will consist of only three subjects, Italian composition being done away with.

The vivâ voce examinations will no longer include mathematics, and will deal with the subjects of the set papers, military regulations, general descriptive geography, French, and either German, English or Russian, at candidate's option.

Competitive Meeting for the Acquisition of Automobile-Wagons for the Army.—According to the *Esercito Italiano*, it is intended to organise a national competitive meeting for the provision of 600 automobile-wagons.

The wagons are to be of two different models and present the following characteristics: 4 vertical-cylinders motors, chain transmission, wheels with metal tyres, benzine reservoirs placed in front and capable of holding the necessary quantity of spirit for a run of 200 kilometres (124½ miles). The automobile, when loaded, should be able to attain a speed of 15 kilometres (9¼ miles) an hour and overcome a gradient of 0·15 metres.

The vehicles will be submitted to a test of consumption of fuel and endurance over a distance of 200 kilometres (124½ miles), a laboratory test of the endurance of the *matériel*, and an endurance test over a run of 800 kilometres (497 miles).

The commission charged with laying down the conditions of the trials will also see to the taking over of the vehicles ordered as the result of the competition.

Italy.

Trial of a New Field Oven.—According to the *Esercito Italiano*, a trial was made last December at Turin of a field bakery (Trinchieri system), which costs about 5,000 francs (£200) and can furnish 3,100 rations in 24 hours, whilst the Weiss system, the one at present in use, costs 4,600 francs (£184), but can only produce 1,500 rations.

The Trinchieri oven, with a constant heat and continuous production, is divided into two superposed compartments, each containing a baking oven and a furnace. The whole is enclosed in a caisson with two steel partitions separated by a layer of isolating material.

The bakery is carried on a three-horse wagon, and a method of conveying it on an automobile conveyance is being carefully studied.—*Bulletin de la Presse et de la Bibliographie Militaires.*

Russia.

Creation of a General Staff Committee.—A series of measures completing those which had already been taken in the early part of last year affecting the artillery and engineers, have now entrusted to one single body the study of all questions concerning the preparation for war which was formerly divided between several committees.

The Prikaz No. 581 of the 22nd December of last year (our 4th January, 1910), creates the General Staff Committee, which is charged with all the important questions concerning the preparation of the Army for war. Its composition is as follows :—

President.—The Chief of the General Staff.

Members.—The Chief of the Staff of the Minister for War;

The Heads of the Chancellery and Departments of the Ministry of War;

The Quarter-Master General;

The Chief of the Department of Military Communications (of the General Staff [1]);

The Chief of the Mobilisation Department.

By the same Prikaz the following Committees are suppressed :—

The Mobilisation Committee;

The Superior Fortress Committee; the duties of these two Committees are merged in the duties of the newly-created Committee;

The Committee of Instruction of the troops.

The Committee of Military Hygiene is also suppressed and all questions concerning the sanitary state of the Army are considered by the General Department of Military Hygiene, which is now to be styled The General Medical Department.—*Revue Militaire des Armées Etrangères.*

Scurvy in the Russian Army and Navy. With Special Reference to the Siege of Port Arthur.—In the *Deutsche Militarärztliche Zeitschrift* of 20th August, 1909, Oberstabsarzt Dr. Blau gives a good resumé of the occurrence of scurvy of recent years in continental armies with special

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[1] That is to say, the Heads of all the Departments of the General Staff except the Topographical Department.

Russia.

reference to the Russian army in Manchuria and the garrison of Port Arthur during the siege.

The incidence in the Austro-Hungarian army was as follows :—

1901,	78	admissions	= 0·2	per 1,000	of strength
1902,	112	,,	= 0·4	,,	,,
1903,	64	,,	= 0·2	,,	,,
1904,	468	,,	= 1·6	,,	,, (the 8th Army Corps had 10·2 admissions per 1,000).
1905,	78	,,	= 0·3	per 1,000	

During the first occupation of Bosnia the Austrian troops suffered severely from scurvy.

During the above years the French, Belgian and Dutch armies were almost entirely free from this disease.

The Italian returns group scurvy with other diseases.

In the German army, with an approximate strength of 530,000, there have never been more than five cases in any one year from 1898 to 1907. Among the German troops employed in the Boxer expedition a few cases of scurvy during convalescence from typhoid were noted in the winter of 1900-1901.

During the Franco-German War of 1870-71 only a few isolated cases of scurvy were reported, but in the army besieging Paris several observers noted a scorbutic tendency which had an unfavourable influence on other diseases. Among the French prisoners of war, however, a great many instances of purpura, scurvy and allied diseases were noted. In four places small epidemics occurred. These were :—

	Strength.	Admissions for scurvy.
Wesel	18,000	150
Neisse	11,000	55
Wittenberg	4,000	75
Ingolstadt	9,000	159

The causes of this epidemic were thought to be (*a*) Mental depression due to captivity; (*b*) Crowding a large number of persons into comparatively small spaces; (*c*) Dampness of the walls. Most of the cases occurred in casemates and at the time of year when the walls usually "sweated."

In the German navy scurvy is of rare occurrence.

Russian Army.

The following table shows the incidence in the Russian Army :—

	Admitted.	Invalided.	Died (per 1,000 of strength).
1903 ...	0·7	0·2	0·01
1904 ...	1·0	0·4	0·01
1905 ...	0·8	0·3	0·005
1906 ...	3·5	0·6	0·03

In 1904 the epidemic in Port Arthur during the siege and a smaller one in Sveaburg caused a considerable rise in the incidence. In 1905 there were no epidemics of scurvy. The great rise took place in 1906 after the war. The troops most affected were those who had spent the winter and spring in Manchuria, and were sent back to Russia during

Russia.

the summer of 1906. Possibly the disease had really originated in Manchuria and been aggravated by the long journey back to Russia, with its attendant difficulties in feeding, so that on arrival in Russia, where the medical officers had sufficient leisure to examine their sick, the affection was sufficiently developed to be recognised and diagnosed instead of being confused with anæmia or malarial cachexia.

In former years scurvy must have been fairly common in the Russian army, as is shown by the following figures for the garrison of Moscow:—

	Admissions.	Invalided.	Died.
1881	708	543	30
1882	312	211	26
1883	445	414	26
1884	146	129	10
1885	423	378	12
1887	97	93	4

Scurvy was also noted as a complication of other diseases in 603 cases during 4 years.

In the Russian navy the incidence was 4 per 1,000 of strength in 1905 and ·7 in 1906 (the former year includes the *personnel* employed in Port Arthur). The cruiser squadron in Vladivostok had 101 cases, of which 66 occurred in the cruiser *Bogatyr*. The incidence in Vladivostok has always been much higher than in any of the Baltic ports.

Siege of Port Arthur.

The following notes on the conditions in Port Arthur are taken from the report by *Obermilitärarzt* M.O. Isserson in charge of No. 5 *Feldlazarett*.

The first cases began in July, 1904; the greatest incidence was in December, 1904, followed by a very rapid diminution in January, 1905, consequent on the surrender of the fortress and improved food supply. The total number of cases was about 900, with 50 deaths, indeed scurvy was almost as fatal as some of the more dreaded contagious diseases. The percentage of deaths to admissions for enteric was 66, for dysentery 26, while for scurvy it was 41·7.

Isserson gives the following notes on food supplies during the siege. The issue of fresh meat ceased early in August, and the troops received corned beef on 4 days a week. Horse flesh was available for some weeks, the sick receiving 3 to 6 *ozs.* daily.

At the beginning of September preserved meat ran short, and the troops received horse flesh twice a week, together with rye flour; the hospitals were given wheaten flour for a time, and later on ship's biscuit.

In October butter and preserved milk were no longer obtainable, and the flour became mouldy and weevily. The food supplies were at their very worst towards the end of the year.

The influence of feeding on the incidence of scurvy is clearly shown by the admission rates. Thus in June there was one case of scurvy, in August 25, in September 35, in October 170, in November 270, and in December 400.

As a result of his experience Isserson states that no treatment is of any use without proper dieting. The causes of scurvy are several and may be grouped as follows:—(1) Monotony of Diet. (2) Inferior quality

Russia.

of the food. (3) The strain of active service. (4) The influence of the numerous fast days in the Russian army. The number of these varies in different regiments from 23 to 183 in the year. (5) Poor physique; many weakly men who were not in a fit condition to stand the hardships of a campaign had to be recalled to the colours from the reserve. (6) Bad hygienic conditions under which the troops lived in the field, in dug-out huts or Chinese *Fanza*.

Dr. Blau, in commenting on the above, notes that monotony of diet alone cannot be a very potent cause of scurvy, as Nansen and Johannsen lived for months on fresh meat and fat without any impairment of health. He quotes Jackson and Vaughan Harley's experiments on monkeys to show that tainted food tends to produce scurvy, and thinks that, under the conditions prevailing in Port Arthur during the siege, this was probably one of the main factors responsible for the excessive incidence. The possibility of scurvy being a secondary infection due to oral sepsis as advocated by Horne must not be overlooked.

The Russian experiences demonstrate that the prophylaxis of scurvy in the field lies in :—(1) Assuring a regular and sufficiently varied food supply. (2) Preventing the consumption of any articles of doubtful quality. (3) Examining all mouths, and, where necessary, insisting on antiseptic treatment when the general conditions of service in any way favour the appearance of scurvy.

Lessons from the Past.—Under this heading in the JOURNAL for November last year, in the Military Notes (Russia), appeared an extract taken from the *Novoe Vremya*. On page 1523, paragraphs 3 and 4, the writer states :—

"It is to some purpose that in the regulations relating to the Japanese Military Order of the "Falcon" we find only five occasions on which it is awarded, and three of them are : "The accomplishment of an order in rear of the enemy."

"Above this comes : "Saving the life of a superior officer at great personal risk," and below : "The assassination of the enemy's commander." "

The writer of the article in question seems to have laboured under some misapprehension, and we are informed on high authority that there is no Japanese Order known as that of the "Falcon"; there is, however, an Order, the name of which is usually translated into English as "The Golden Kite." Its statutes name 37 "Meritorious Actions," for which it may be bestowed on soldiers. One of them is "the capture of higher officers of the enemy, or the rescue or re-capture of our own higher officers from the enemy." There is nothing about "assassination," and naturally, for it is forbidden by the Hague Convention concerning the laws and customs of war on land.

CORRESPONDENCE.

ARTILLERY SUPPORT OF INFANTRY.

To the Editor of the JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION.

SIR,—In the November, 1909, number of the JOURNAL, page 1457, I see the following statement by Major E. M. Molyneux, D.S.O., 12th Cavalry :—

"The successes won on Pieter's Hill were won by sheer hard infantry fighting; the tactics of the artillery were already too antiquated to be of the assistance that our infantry expected."

This statement contains a great injustice to the artillery; which, in both cases under notice in this letter, included guns of the Royal Navy as well as those of the Royal Artillery. Many other observers by no means agree with Major Molyneux. If any one will be at the trouble of reading "The History of the War in South Africa" (Official Account), Vol. II., pages 509 *et seq.*, he will realise the great and essential part which the artillery played in the capture of Pieter's Hill. Space prevents me from quoting these pages in full; I will content myself with one extract—page 519 :—

"The attacks of the 11th and 4th Brigades were magnificently supported by the artillery."

Again, a little later, Major Molyneux says :—"Their (artillery) support was inadequate, and frequently dangerous to our own infantry. This was noticeably the case at Pieter's Hill and at Botha's Pass."

I have before shown that the Official Account does not support this statement as regards Pieter's Hill.

If we turn again to the Official Account, Vol. III., page 272, to see what happened at Botha's Pass—we find that "the practice of the heavy artillery was accurate and incessant," while we also notice that the casualties in the British force attacking the pass, this day, amounted to only 2 killed and 13 wounded.

These figures must be convincing that here the artillery support was efficient enough to cover successfully the infantry attack, and that the charge made against the artillery of causing danger to our own attacking infantry cannot be seriously maintained.

It always strikes me as a great pity when an officer, in his anxiety to press a particular point, falls into the error of endeavouring to support his arguments with statements which will not bear investigation. This is in itself bad as it tends to prejudice his other statements which cannot be so easily enquired into, and gives the impression of special pleading in place of exhibiting a spirit of scientific and precise enquiry.

But when such statements reflect on the efficiency in action of an arm which carried out its duties notoriously well on the occasions mentioned, such inaccuracy becomes more harmful and is to be greatly deprecated.

I am, Sir,

Your obedient servant,

T. CAPPER, *Brigadier-General.*

Commandant, Staff College, Quetta, India.

22*nd March*, 1910.

NAVAL AND MILITARY CALENDAR.

APRIL, 1910.

7th (Th.) Launch of first-class armoured Cruiser *Moltke* from the Yard of Blohm and Voss, Hamburg, for German Navy.

9th (Sat.) Launch of H.M.S. *Colossus* from Scott's Shipbuilding Yard, Clydebank.

" " Launch of Destroyer *Yarra*, 2nd Unit for the Commonwealth of Australia's Navy, on the Clyde.

11th (M.) H.M.S. *King Alfred* arrived at Portsmouth from China.

12th (T.) Launch of first-class battleship *Vergniaud* from the Yard of the Société de la Giroude, Bordeaux, for French Navy.

19th (T.) H.M.S. *Collingwood* commissioned at Devonport.

24th (S.) H.M.S. *Exmouth* arrived at Portsmouth from Mediterranean.

25th (M.) H.M.S. *Bacchante* arrived at Chatham from the Mediterranean.

" " H.M.S. *Suffolk* arrived at Devonport from Mediterranean.

" " German Military Airship *Zeppelin II* dragged from its Moorings at Lemberg and Wrecked.

Addendum to March Calendar,

12th March (Sat.) Launch of first-class armoured Cruiser *Averoff* from the Orlando Yard at Leghorn for the Greek Navy.

FOREIGN PERIODICALS.

NAVAL.

ARGENTINE REPUBLIC.—*Boletín del Centro Naval.* Buenos Aires: February, 1910.—"Defence of Military Ports." "The Bofors Works in Sweden." "Submarine Sound Signals." "Hydrographical Methods in the United States and in France." "Determination of Range Tables, the 24 cm. Krupp Gun." "Shrapnel Shell." "On the Results Attained from Different Kinds of Watertube Boilers during the World Cruise of the U.S. Fleet."

AUSTRIA-HUNGARY.—*Mittheilungen aus dem Gebiete des Seewesens.* No. 5. Pola: May, 1910.—"The Tide Phenomena in the Harbour of Poland." "On Landings." "Italian Naval Estimates for 1910-11." "New English Compass."

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CHILI.—*Revista de Marina.* Valparaiso: January, 1910.—"Beneficial Evolution." "Errors Arising from the Incorrect Weight of Projectiles." "Proposed Modification in the Condensers of the *Capitan Prat.*" "Deterioration of Metals" (*concluded*). "Electric Currents." "Uniform of Engineer Cadets." "Battle Practice at Sea" (*concluded*). "Civilian Employés of the Fleet and their Pay." "Unity of Calibre in Naval Artillery." "General Considerations on Landings."

FRANCE.—*Revue Maritime.* Paris: March, 1910.—"Official History of the Russo-Japanese Naval War"; published by the General Staff of the Japanese Navy. "Appendix to the Question of the Types and Armament of Modern Fleets." "Improvements in Artillery in 1908-09." "The Anglo-Portuguese Alliance." "The Naval Artillery Struggle and Projectiles Charged with Explosives." "The Present Position as regards Turbines in Ships of War." "Propelling Engines of Ships of War." "The New English Cruisers."

La Marine Française. Paris: April, 1910.—"Against Whom?" "The Necessary Armament." "The Scandals of the Navy." "In the Building Yards." "The Officers of the Navy must Navigate." "The Postal Maritime Services." "The Naval Programme" (*concluded*).

La Vie Maritime. Paris: 10th April, 1910.—"The Naval Programme." "Our Abandoned Industry." "The Report of Mer Monis." "*Apropos* of the *Pothuau*." "The Naval Manœuvres." "We Build Two Battleships." "Naval Insouciance and Waste." 25th April.—"The Naval Manœuvres." "*Apropos* of the Naval Programme." "The Launch of the *Vergniaud*." "Torpedo Boat Exercises in Germany." "International Maritime Law." "The United States and Japan."

Le Yacht. Paris: 2nd April, 1910.—"The Reorganisation of the Submarine Defences." "Yachting Notes." "The Scout of the Modern Squadron in Different Navies: The Scouting Problem." "Launch of the Greek Armoured Cruiser *Averoff*." 9th April.—"The Navy in the Senate." "Yachting Notes." "The Reorganisation of the Flotillas." "The German Battleship *Rheinland*." 16th April.—"Naval Policy." "Yachting Notes." "The Launch of the *Vergniaud*." 23rd April.—"The Administration of the Navy." "Yachting Notes." "Naval Policy and the French Fleet." "*Apropos* of the Launch of the *Vergniaud*." 30th April.—"Two Naval Writers: Mahan and Davelay." "Yachting Notes." "Before the Naval Manœuvres." "The Russian Submersible *Karp*."

Le Moniteur de la Flotte. Paris: 2nd and 9th April, 1910.—"Promotion among the Men." "The Navy in Parliament." 16th April.—"The Manœuvres of 1910." "At Full Speed." "Admiral Fournier's Book: Naval Policy and the French Fleet." 23rd April.—"Guns and Turrets." "Voluntary Recruits in 1909." 30th April.—"Command and the Services on Board."

GERMANY.—*Marine Rundschau.* Berlin: May, 1910.—"The French Navy Law of 1910." "The Economic and Political Position of Canada." "The Battleship of the Future." "The Spring Meeting of the Society of Naval Architects." "The English Naval Estimates of 1910-11." "Boats' Motors at the Second International Motor Boat and Motor Exhibition at Berlin, 1910, and their Powers of Development." "Halley's Comet."

ITALY.—*Rivista Marittima.* Rome: March, 1910.—"Electric Searchlights for Coast Defence." "The Disposition of the Artillery on board Large Battleships." "Italian Trade in 1908."

PORTUGAL.—*Revista Portugueza, Colonial e Maritima.* Lisbon: February, 1910.—"The *Régime* of the Native Proprietary" (*continued*). "Ancient Egypt." "Notes from Angola." "Genealogical and Biographical *Data* of some Fayal Families" (*continued*). "Angola." "Colonial Problems" (*continued*).

Annaes do Club Militar Naval. Lisbon: February, 1910. — "The Necessity of Restricting our Naval Armaments." "The Peoples of Portuguese Guinea." "An Obscure Point in the History of the Campaigns for Independence." "The Working of the Medical Service in Naval Battles." "The French Naval Programme." "An Interesting Problem."

SPAIN.—*Revista General de Marina.* Madrid: April, 1910.—"The Construction, Management, and Organisation of Modern Ships of War" (*continued*). "Speed and Turbine Engines." "Nomenclature and Something More." "Distance Indicator." "The Battleship of the Future."

MILITARY.

AUSTRIA-HUNGARY.—*Danzer's Armee-Zeitung.* Vienna: 7th April, 1910.—"The Reform of the Army Law: No. II." "Rome—Salonika—Reni." "Ragusa as the Seat of the New Army Corps Headquarters." "The Steel Airship (von Wallach) System." "The New Field Uniform for German Officers." 21st April.—"A Reorganisation of Our Military Force." "The Sign of the Balkan Confederation Coming into Being." "Albania and England." "The Indebtedness of Our Officers: Its Causes and the Remedy." "A New Book on Albania." "The Fire Test of the Russian Army." 28th April.—"Military Character Sketches." "The Indebtedness of Our Officers: Its Causes and the Remedy." "The Prize Firing of the Fortress Artillery." "From the Roumanian Army." "Russia's Attempts to Recreate Her Fighting Power." "The French Manœuvre Report, 1909."

Streffleur's Militärische Zeitschrift. Vienna: April, 1910.—"The Commanding Generals in Prague from 1621 up to the Present Time." "Contributions to the History of the Russo-Turkish War" (*continued*). "Observations on the Manœuvres of the 3rd and 14th Army Corps in Carinthia from the 2nd to the 7th September, 1907." "Is the Artillery Question Solved?" "Progress in Foreign Armies" (*concluded*). "Communications from the Army School of Musketry."

Kavalleristische Monatshefte. Vienna: April, 1910.—"Results of Our Prize Essay." "The Kaiser Hussars in the Campaign against the Duchy of Warsaw, 1809." "Infantry Patrol Detachments against Cavalry." "Pistols and Pistol Practice." "Fighting Moments of Cavalry According to Historical War *Data.*" "Training of Horses in the Open." "The Judging of Horses." "The Self-Consciousness of the Horse." "The Royal Hungarian State Stud at Mezöhegves." "Tactical Problems for Cavalry Officers."

BELGIUM.—*Bulletin de la Presse et de la Bibliographie Militaires.* Brussels: 15th March, 1910.—"The Battle of the Future" (*continued*). "The Empire of the Pacific" (*concluded*). "The Principles of Rational Gymnastics" (*continued*). 31st March.—"The Battle of the Future" (*continued*). "The Principles of Rational Gymnastics" (*continued*).

FRANCE.—*Journal des Sciences Militaires.* Paris: 1st April, 1910.—"The Automobile and the Army." "A Study on the Progress of Arms and an Examination into the Effect in Battle and on Methods of Instruction." "A Study on the Medical Service in the Field" (*concluded*). "Method of Employment of Field Artillery in France and Germany" (*concluded*). "The Question of the Black Troops and the Recruiting of

Natives in Algeria." "How to Organise Cyclist Units" (*concluded*). 15th April, 1910.—"A New Bound." "A Study on the Progress of Arms and an Examination into the Effect in Battle and on the Methods of Instruction" (*continued*). "The Automobile and the Army" (*continued*). "Introduction to a General Study of the Eastern Question." "The Question of the Black Troops and the Recruiting of Natives in Algeria" (*concluded*).

Revue d'Infanterie. Paris: March, 1910.—"The Japanese in Manchuria (a Strategic Study)" (*continued*). "The New Field Service Regulations of the English Army" (*concluded*). "The Chaouïa and its Pacification" (*continued*). "A Study on the Tactical Employment of the Infantry Machine Gun" (*concluded*).

Revue de Cavalerie. Paris: March, 1910.—"Some Criticisms of the Director-General on the Cavalry Manœuvres, 1909." "Let us Simplify the Next Regulations." "Programmes and Reports of Practical Exercises of Cadres" (*continued*). "Some Alterations at the Riding School to Adapt it to the Two Years' Service." "Study on the Precocity of the Horse" (*concluded*).

Revue d'Artillerie. Paris: February, 1910.—"Mer Navier and the Flight of Birds." "Pointed Ball Cartridges in Spain" (*continued*).

Revue d'Histoire. Paris: April, 1910.—"The Armies of Louis XIV. in 1674" (*continued*). "The Manœuvre of Pultusk." "The Campaign of 1813: The Preliminaries" (*continued*). "The Mitrailleuse in 1870" (*concluded*). "The War of 1870-71: The National Defence in the Provinces" (*continued*). "Unpublished Letters of Napoleon Ist."

Revue Militaire des Armées Etrangères. Paris: April, 1910.—"The Operations Round Mélilla in 1909" (*concluded*). "The Imperial German Manœuvres of 1909."

Revue Militaire Générale. Paris: March, 1910.—"The Spaniards in Morocco" (*continued*). "Studies on the 18th August, 1870." "Some Words on Artillery in Action and the Communications with Infantry." "The Cavalry when Covering."

GERMANY.—*Militär-Wochenblatt.* Berlin: 2nd April, 1910.—"Army Corps Leading in Field War." "Napoleon's Means of Communication, No. IV.: The Postal Service" (*continued*). "News from the Russian Army." 5th April.—"General of Cavalry von Hartrott: Obituary Notice." "Exercises for Promoting the Co-operation of Infantry and Artillery." "Napoleon's Means of Communication" (*concluded*). "News from the Army of the United States." "The Phenomenon of Deutsch-Eylau." 7th April.—"Aim and Strength of the Development in Shooting a Hundred Years Ago and To-day." "Observations on the Losses of the German Army in the War against France, 1870-71." "Inspections of Field Artillery." 9th April.—"The 25th Year of the Existence of the Royal Bavarian War Archives." "Proposed Changes in the Cavalry Riding Instructions of 31st August, 1882." "The Military and Naval Development and Importance of Antwerp" (*concluded*). 12th April.—"The Commanding Generals of the German Army from 1889 to 1909." "New

Contributions to the History of the Italian-Austrian War of 1866." "Proposed Changes in the Cavalry Riding Instructions of 31st August, 1882" (*continued*). "Better Position of Non-Commissioned Officers." "Requisite New Outlay on the Russian Artillery." 14th April.—"Von Löbell's Yearly Reports." "Proposed Changes in the Cavalry Riding Instructions of 31st August, 1882" (*concluded*). "Proposals for Gun Exercises of the Field Artillery." 16th April.—"The Commanding Generals of the German Army from 1889 to 1909" (*continued*). "Group Leading." "Is a Higher Bodily and Moral Training of Our Officers without Considerable Increase in Cost Possible?" "From France's Last Colonial Wars." 19th April.—"Handling of Reins." "Military-Technical Review: Airship Maps." "Group Leading" (*concluded*). 21st April.—"Once More: Peasants on the Chessboard" (*continued*). "News from the English Army: 1. The Organisation of Imperial Defence; 2. The Horse Question." 23rd April.—"News from the English Army: 3. The Army Estimates, 1910-11" (*concluded*). "Once More: Peasants on the Chessboard" (*continued*). 26th April.—"General von Verdy on 27th April, 1910." "Training for Battle and Desire for Action." "Sketch of the Development of the Chinese Army." 28th April.—"The Fifty Years' Jubilee of Lieut.-General von Usedom." "The Training for Battle and Desire for Action" (*concluded*). "Sketch of the Development of the Chinese Army" (*concluded*).

Artilleristische Monatshefte. Berlin: March, 1910.—"The Employment of Field Artillery in Fortress War." "On the Employment of Heavy Artillery." "The Fighting of Shield Batteries." "The Firing Training of French Artillery Officers." "The Austro-Hungarian Firing Instruction for Field Howitzers." "Fighting Turret Armour." "The Handling of Arms and Fire Training: III."

Jahrbücher für die Deutsche Armee und Marine. Berlin: April, 1910.—"Training for War." "Proficiency in Arms in Germany, France, Russia, and its Effects on Readiness for War." "On Rifle Shooting." "Remarks on the Field Howitzer Projectile 05." "Naval Construction of the Great Powers." "The Year's Report of the Minister for War of the United States."

ITALY.—*Rivista di Artiglieria e di Genio.* Rome: February, 1910.—Has not yet been received.

Rivista Militare Italiana. Rome: April, 1910.—Has not yet been received.

SPAIN.—*Revista Técnica de Infantería y Caballería.* Madrid: 1st March, 1910.—"Evolution of Military Law among Modern Nations." "Lessons of the Campaign" (*continued*). "The Infantry in the French Army" (*continued*). "Infantry Tactics (their Evolution since the Anglo-Boer War)" (*continued*). "Aerostation in our Army" (*continued*). "Military Technique and Information." 15th March.—"Evolution of Military Law among Modern Nations" (*continued*). "The Infantry in the French Army" (*continued*). "Infantry Tactics (their Evolution since the Anglo-Boer War" (*concluded*). "Aerostation in our Army" (*continued*). "Military Technique and Information" (*continued*).

Revista Científico-Militar Biblioteca Militar. Barcelona: 10th April, 1910.—"Lessons from the Riff War" (*continued*). "Tactical Themes for Sergeants." "New Conception of Military Instruction." 25th April.—"Lessons from the Riff War" (*continued*). "Organisation of Fortified Field Positions." "Napoleon's Generals." "An Allocation." "New Conception of Military Training" (*continued*).

SWITZERLAND.—*Revue Militaire Suisse.* Lausanne: April, 1910.—"The Brigade Manœuvres of the 1st Division in 1909." "Night Combats." "Imperfections of Sight and Aptitude for Military Service." "Bridges and Foot Bridges on Fixed or Floating Supports."

UNITED STATES.—*Journal of the United States Artillery.* Fort Monroe: March-April, 1910.—"Electric Lighting and Power Plant of the Coast Artillery School." "A Possible Use for Aeroplanes in War Suggested by Witnessing their Flights at Los Angeles." "Attack and Defence of Fortified Harbours." "The Altitude Factor Again." "Description of a "Sub-Target" Device for the Coast Artillery."

Journal of the United States Infantry Association. Washington: March, 1910.—"Infantry Attack." "The Fourth Article of War." "Military Instruction at Civil Educational Institutions." "Notes on Range Practice." "Details *versus* Permanent Staff Appointments." "The Tactical Employment of Field Artillery."

Journal of the United States Cavalry Association. Fort Leavenworth, Kansas: March, 1910.—"Volunteer Cavalry" (*concluded*). "Notes on Cavalry Raids and Patrols during the Russo-Japanese War." "The French Society for Advancing the Breeding of Army Horses." "Saddle and Harness Galls." "Tactical Instruction of Officers." "Broadmindedness." "Construction of War Game Problems." "Training School for Bakers and Cooks."

Journal of the Military Service Institution. Governor's Island, New York: May-June, 1910.—"A War Organisation." "Should Medical Officers be Held Directly Responsible for the Sanitation and Health of the Troops? (Seaman Prize)." Same Subject (Honourable Mention). "The Confederate Cavalry in the Gettysburg Campaign." "Strategy and Good Roads." "Grand Italian Army Manœuvres." "The Benet-Mercie Machine Rifle." "The Regular Army in the Civil War." "Prose Poem to War." "Comment and Criticism."

NOTICES OF BOOKS.

The Horrors of War in Great Britain: The Miseries and Sufferings of all Non-Fighters, from Crossing-Sweeper to Castle-Dweller, were an Invader in our Island. By Colonel LONSDALE HALE. 16 pp. London: Love and Malcolmson. Price, Twopence.

Although this pamphlet is written for civilians, there is much in it which may be new to soldiers. The purpose of the author is to make civilians understand and realize what the "occupation" of country by an invader means to all the inhabitants in it. He writes: "I imagine that each of our possible invaders has his own special system of 'Living on the Country,' already prepared for future use; but of this, or any other branch of the art of modern war in Europe, I have for many years regarded the Germans as by far the soundest teachers, so I have studied their teaching as shown in both theory and practice, and sometimes on the very ground where the theory was put into practice." Then is given from v. Schellendorf's "The Duties of the General Staff" the theory, and this is followed by illustrations of practice taken from the war of 1870-71. The result is uncomfortably enlightening. On a slip of paper enclosed in the pamphlet we read: "I am endeavouring to forewarn our own civil authorities (see p. 6) by sending a copy of this explanation of 'Living on the Country' to every Mayor in England and Wales, and to the Provost of every Parliamentary Borough in Scotland." It would be interesting to know how many have been consigned to the waste paper basket without being read. Probably most of them.

A Narrative of the Siege of Delhi, 1857. By CHARLES JOHN GRIFFITHS, late Captain 61st Regiment. London: John Murray. 1910.

There is a fascination in every narrative of the events of the great rebellion in the year 1857 which we speak of as the Indian Mutiny, and among the martial achievements of our countrymen in that period of trial no incident is more glorious than the siege and capture of Delhi, the headquarters of the rebellion. From the days of Warren Hastings to those of Lord Canning, the history of India bristles indeed with the triumphs of our arms; but, for dogged tenacity and desperate courage, the fighting around the ridge of Delhi, and the capture of that great city from a powerful and well-trained army by a handful of English soldiers has never been excelled in the annals of war.

In many sieges, in many countries, brave men innumerable have laid down their lives in the trenches or at the deadly breach; but when all the conditions of the capture of the Indian capital are considered, the weakness of the attacking force, the ravages of disease, the trials of war in an Indian hot weather, the fearful consequences of failure, and the immense numerical superiority of the defenders, England should surely remember with pride those sons of hers who conquered or who died at

Delhi. This consideration alone would cause us to welcome the simple but stirring narrative in which Captain Griffiths, with the aid of his brother officer, Captain Yonge, tells us of the share taken by the 61st Regiment in the Mutiny campaign, and describes, as an eye-witness alone can describe, the most striking incidents that came under his observation.

There is, however, another reason for considering Captain Griffith's narrative one of special value to the civilian, as well as to the military reader, and to this we must now refer.

More than fifty years have elapsed since the great rising in Oudh and other portions of Hindustan caused the death in shocking circumstances of a great number of English men, women, and children. We need not dwell on the horrors of 1857. Suffice it to say that terrible things happened, and that the punishment imposed on the guilty provinces was also terrible. Many writers, doubtless from good motives, have, since those dark days, attempted to minimise the sufferings of our countrymen and countrywomen; and others, members of that strange and contemptible class, ever ready to condemn its fellows, have declared the suppression of the rebellion to have been blindly and needlessly cruel and vindictive.

It is to writers such as these, to those misled by them, and, above all, to ignorant and mischievous agitators, reckless of the teachings of history, that Captain Griffiths' book should be useful. A few of the stories told by him seem to be based on hearsay and may be inaccurate in their details, but the book as a whole bears the stamp of truth and presents to its readers a vivid impression of the realities and the horrors of a great rebellion and its suppression. Its plain speaking, though in places painful, is, we consider, wholesome at the present moment. It is well that Englishmen should understand what the rebellion of 1857 meant to the white men, women, and children exposed to its ravages; and it is well, too, that those agitators who are now striving to bring about a repetition on a much larger scale of the events of that terrible year, should be reminded of the history of the Mutiny, of the short-lived triumph of the rebels, and of the heavy punishment that befell them.

A Short History of the 3rd Queen's Own Gurkha Rifles. By Lieut.-General H. D. Hutchinson, C.S.I. London: Hugh Rees, Ltd., 1907.

Rarely, perhaps, has the record of half a century of fighting been compressed into a smaller compass. Lieut.-General Hutchinson, the Colonel of the 3rd Gurkhas, here relates in a few words the story of the Regiment which was raised in the year of Waterloo, and which, having seen no active service during the earlier half of its existence, has since played a famous part in almost every one of our later Indian campaigns. The 3rd Gurkhas came down from their hills in 1857, and helped us to hold the Ridge at Delhi and to storm the Kashmir Gate; they took part in the Bhutan campaign; and when, during the Afghan War, Sir Donald Stewart marched from Kandahar to Kabul, it was "the resolute firmness" of the 3rd Gurkhas which helped their commander to snatch victory out of what had come perilously near to defeat. The Regiment has also served in

Burmah, in Lushai, and on the North-West Frontier. Lieut.-General Hutchinson, who raised and commanded the 2nd Battalion, has here given in brief a deeply interesting and stirring record of the services of this distinguished Regiment—illustrated by reproductions of regimental sketches and by photographs of portraits of some of those who have had the honour to train and command the two battalions of the Queen's Own Gurkha Rifles.

PRINCIPAL ADDITIONS TO LIBRARY, APRIL, 1910.

The German Invasion of England. By a French Staff Officer. Crown 8vo. 1s. (David Nutt.) London, 1910.

The Mohammadan Dynasties. By STANLEY LANE-POOLE. Crown 8vo. 12s. (Archibald Constable & Co.) London, 1894.

The Navy of Venice. By ALTHEA WIEL. 8vo. 15s. (John Murray.) London, 1910.

Selections from the State Papers of the Governors-General of India. Edited by G. W. FORREST. 2 Vols. 8vo. 21s. (B. H. Blackwell.) Oxford, 1910.

A Narrative of the Siege of Delhi with an Account of the Mutiny at Ferozepore in 1857. By CHARLES JOHN GRIFFITHS, late Captain 61st Regiment. Edited by HENRY JOHN YONGE. 8vo. 9s. (John Murray.) London, 1910.

The Price of Blood. By Captain VLADIMIR SEMENOFF, I.R.N. Translated by LEONARD LEWERY and Major F. R. GODFREY. Crown 8vo. 5s. (John Murray.) London, 1910.

Chambers's Mathematical Tables. Edited by JAMES PRYDE. New Edition. Crown 8vo. 4s. 6d. (W. & R. Chambers, Ltd.) London, n.d.

Geschichte des Siebenjährigen Krieges. By J. W. VON ARCHENHOLTZ. 4th Edition. Crown 8vo. Berlin, 1830.

Report on the Manuscripts of Mrs. Stopford-Sackville of Drayton House, Northamptonshire. Historical Manuscripts Commission. 8vo. 1s. 6d. (Hereford Times Co., Ltd.) Hereford, 1910.

Historical Records of the West Kent Militia, with Some Account of the Earlier Defensive Levies in Kent. By Colonel J. BONHOTE. Crown 4to. (Presented.) (Hudson & Kearns, Ltd.) London, 1909.

Militär-historisches Kriegs-Lexikon, 1618-1905. By HERAUSGEGEBEN VON DR. GASTON BODART. 8vo. (Presented.) (C. W. Stern.) Vienna, 1909.

The Battle of Liao-Yang. By J. H. ANDERSON. 8vo. 1s. 6d. (Presented.) (Hugh Rees, Ltd.) London, 1910.

The Organization of Machine Guns and their Tactical Uses, with Notes on Training. By V. A. JACKSON, York and Lancaster Regiment. Crown 8vo. 1s. 6d. (Presented.) (Forster Groom & Co., Ltd.) London, 1910.

Handbook of the Rumanian Army. Prepared by the General Staff. Fcap. 8vo. (Presented.) (Mackie & Co.) London, 1910.

My Country, Right or Wrong. By GUSTAVE HERVE. Translated from the French by GUY BOWMAN. Crown 8vo. 3s. 6d. (Presented.) (A. C. Fifield.) London, 1910.

Many Memories of Life in India, at Home and Abroad. By J. H. RIVETT-CARNAC. 8vo. 10s. 6d. (William Blackwood & Sons.) Edinburgh, 1910.

Studies in Napoleonic Statesmanship: Germany. By H. A. L. FISHER. 8vo. 12s. 6d. (Clarendon Press.) Oxford, 1910.

Europe's Optical Illusion. By N. ANGELL. Crown 8vo. 2s. 6d. (Simkin, Marshall, Hamilton, Kent & Co., Ltd.) London, 1910.

Organisation Militaire Suisse, 1907. 12mo. (Presented.) n.p., 1908.

Ordre de Bataille der Schweizerischen Armee auf 1 April, 1910. Crown 8vo. n.p., 1910.

Aerial Machines and War. By Lord MONTAGU OF BEAULIEU. (Aldershot Military Society.) Crown 8vo. London, 1910.

RECENT PUBLICATIONS OF MILITARY INTEREST.

COMPILED BY THE GENERAL STAFF, WAR OFFICE.

APRIL, 1910. PUBLISHED QUARTERLY.

Communicated by the General Staff and reprinted by permission of the Controller of His Majesty's Stationery Office.

CONTENTS.

PREFATORY NOTE.

This Pamphlet will be issued quarterly, in April, July, October and January. Its purpose is to draw the attention of Officers to British and Foreign publications of Military interest which are likely to assist them in their professional work. Copies of the pamphlet will be distributed to the Headquarters of Commands, Educational Establishments, Units and Reference Libraries.

PART II.*

SECTION I.

NOTE.—1. *When the price is not given in part II., Section I., it is not known.*
2. *In Part II., Section I., books whose titles are given in foreign languages as well as in English are published in those languages, and are not translated.*

AERIAL NAVIGATION.

Dirigible Balloons (Les ballons dirigeables). By Lieutenant Archer. 40 pp. 8vo. Paris, 1908. Chapelot. 1/-.

This pamphlet is worthy of study. The author shows by calculation that an ordinary spherical shell, 33 centimetres in diameter and weighing 60 kilogrammes, falls 1,500 metres through the air in 19·5 seconds, and that the lateral pressure of a wind blowing at the rate of 22 miles per hour will only cause a deflection of 10 metres. He also states that it has been proved by actual experiment that a weight of 750 kilogrammes can be discharged from a balloon of the "La Patrie" type without endangering its stability.

From a height of 400 or 500 metres, 50 per cent. of the projectiles discharged have actually been placed in a square of 25 metres side.

Artillery fire at a balloon is also discussed. The author underestimates the damage which might be inflicted by shrapnel bullets, and is of opinion that ordinary field guns will be of no use against dirigibles' owing to the flatness of their trajectories.

Our Aerial Fleet (Notre flotte aérienne). By W. de Fonvielle and G. Besançon. 234 pp., with numerous illustrations. 8vo. Paris, 1908. Gauthier-Villars. 5/6.

A good account of dirigible balloons up to 1908. It is useful to those who wish to study the evolution of the dirigible balloon.

A few aeroplanes are mentioned.

* The titles of all books are given in English; this does not indicate that the books have been translated. The original title in the language in which a work is written, if not in English, is given in brackets.

A History of Aviation (Histoire de l'aviation). By M. Turgan. 280 pp. with numerous diagrams and illustrations. 8vo. Paris, 1909. Geisler. 4/2.

A very complete history of aviation from the times of Icarus to the present day.

It should be explained that the term "Aviation" in France is strictly limited to flying machines which are heavier than air. Unfortunately in this country the word has been adopted to describe aerial locomotion of all kinds.

The first three chapters bring the history of the subject up to A.D. 1850.

The fourth chapter deals with the period 1850 to 1900, and mentions no less than ninety-three different inventors. It is divided into three parts dealing respectively with Ornithopters, Helicopters and Aeroplanes.

Chapters 5 to 8 deal with the period 1900-1909. This portion of the book contains much useful information relating to successful aeroplanes, and is therefore of interest to the designer as well as to the student of history. Some particulars are also given of twenty-five aeroplanes and 10 miscellaneous machines, which, at the time of publication of the book, had not been tried.

An appendix gives short descriptions of the best aviation motors.

The Aeronaut's Vade-Mecum (Le Vade-Mecum de l'Aéronaute). By George Blanchet. 270 pp. with diagrams and illustrations. 8vo. Paris, 1907. Blanchet. 2/6.

This is a good, practical handbook which should be known to all amateur and professional balloonists. It gives a practical account of what to do with a balloon and how to manage it. Sizes, prices, weights, &c., are also given.

The information as to customs duty in France is incorrect at present.

The Elements of Aviation (Elémente d'aviation). By Victor Tatin. 70 pp. with illustrations. 8vo. Paris, 1909. Dunod & Pinat. 3/-.

A good book for anyone who contemplates designing an aeroplane. The laws of air resistance are explained, with the use of the most elementary mathematics, sufficiently clearly to enable the reader to design an aeroplane that will fly.

The author is not without his prejudices, but his views are, on the whole, orthodox.

The short chapter dealing with the early history of the subject is interesting chiefly on account of the appreciation it contains of the work of Sir George Cayley.

All the World's Airships. By F. T. Jane. 374 pp. with numerous illustrations. Fol. London, 1909. Sampson Low. 17/6.

This is the first issue of a publication which is intended to be for the air what "Fighting Ships" is for the sea.

Part I. contains a record and description, so far as is known, of all aeroplanes and dirigibles completed and under construction, and is arranged by nationalities in alphabetical order. Where possible, illustrations are given and details with regard to construction and method of propulsion, &c. Representations in silhouette of the various dirigibles are also included, and are drawn at a uniform scale, but the characteristic features of each are slightly exaggerated in order to facilitate recognition.

Owing to the secrecy that is maintained by inventors this Part is necessarily very incomplete, but it is useful for reference, and the value of subsequent editions will increase as the science of aviation develops.

Part II. contains articles on aviation, and includes one by Mr. C. de Grave Sells on aerial engineering which describes the progress in this branch from 1852 up to the present date.

The First Flying-Men (Les premiers hommes-oiseaux). By Francois Peyrey. 160 pp., with 50 diagrams and illustrations. 8vo. Paris, 1909. Guiton. 3/4.

A detailed and apparently accurate account of the Wright aeroplane and its performances, by a member of the French Commission which took over the Wrights' French patents.

Descriptions both of the early gliders and their motor-driven machines are included, together with full particulars of all the flights made in America and France up to the 31st December, 1908.

The Aerial Flight of Human Beings (L'homme s'envole). By Captain Sazerac de Forge. 100 pp., with 42 diagrams and illustrations. 8vo. Paris, 1909. Berger-Levrault. 1/-.

The companion to the same author's book—"La Conquête de l'air," which deals with the lighter-than-air machines. The book is divided into three chapters, the first being a short historical summary of heavier-than-air machines which have been proposed or constructed.

The second chapter deals shortly with the flight of birds and the main problems of the aeroplane such as stability, starting and landing, and motive power.

The third chapter contains a summary of the improvements required to make the aeroplane practicable for military or commercial use and some remarks on the probable limitations to its employment in war. It also deals with the considerations

governing its use for commerce and sport, together with a few remarks on the social changes that are foreshadowed.

It should be mentioned that some of the statements made already require modification as a result of advances that have been made during the present year.

Determination of Concealed Objectives by means of the Captive Balloon (Détermination des objectifs dérobés aux vues au moyen du ballon captif). By Lieutenant H. Chaumont. 70 pp., with 20 figures. 8vo. Paris, 1909. Berger-Levrault. 1/8.

This book shows the methods by which telephotography from a captive balloon can enable siege artillery to fire on concealed targets. Since a captive balloon has to be at least 5,400 yards from the enemy's battery, the photographic apparatus must be capable of obtaining images of objects from 5,400 to 7,500 yards distant, and it is absolutely necessary that the exposure should be as short as possible, at any rate not more than 1/50th of a second.

The author then explains his own methods of fixing on a map the object disclosed by a photograph taken from a captive balloon. He discusses with various diagrams and mathematical calculations various cases: (a) when the photographic plate is vertical at the time of exposure; (b) when it is inclined; (c) when two photographs from different places are taken; (d) when only one photograph is taken. Then he shows how telephotography can show the elevation of an object. Finally he points out that only an artillery officer can observe artillery fire, so that artillery officers must be trained in balloon work and telephotography.

Aerial Navigation (Navigazione Aerea). By Signor A. de Maria. 338 pp. with 103 plates. 12mo. Milan, 1909. Ulrico Hoepli. 3/-.

This book forms a useful addition to the Hoepli manuals and should prove of interest as a book of reference to any student of aeroplanes. The first 250 pages are taken up with studies of the various elements of the science of aeroplaning—atmosphere, equilibrium, motive power, &c. Then follows a description of the better-known machines. The military aspect of aviation is next considered and the book concludes with a serviceable bibliography. The numerous illustrations add greatly to the lucidity of the manual.

The Early Days of Aerostatics in Lorraine (Les premières expériences aérostatiques faites en Lorraine). By Pierre Boye. 48 pp. with 3 plates. 8vo. Paris, 1909. Berger-Levrault. 2/-.

M. Boye, a distinguished antiquary, has published this little book with a view to stimulating the interest of the men of Lorraine in the newly founded "Ligue nationale aérienne de l'Est," by showing them what a distinguished place their forefathers won in the early days of aerial navigation. The book contains some interesting accounts of early experiences, experiments and ascents.

ARTILLERY.

Applied Lessons in Gunnery for Field Artillery with Examples (Angewandte Lehre der Feldartillerie in Beispielen). By Major Zwenger (German Field Artillery). 118 pp. 8vo. Berlin, 1908. Eisenschmidt. 1/5.

The object of the book, as stated by the author in the preface, is to illustrate the practical application of the "Instructions for Practice of Field Artillery (1907)." It consists of a series of examples of ranging a field battery on targets under various conditions.

The author is well known in Germany as a writer on artillery matters.

BOOKS OF REFERENCE.

Active Service Pocket Book. By Bertrand Stewart, Lieutenant, West Kent (Queen's Own) Yeomanry, xxviii + 1024 pp., 5 × 4 inches. Many illustrations. Fourth edition. London, 1910. Clowes. 4/6.

The fourth edition of this pocket book, besides being considerably enlarged, contains a number of new subjects not touched on in the earlier editions.

The Systematization of the Russian Verb. By W. H. Lowe. 102 pp. 8vo. Cambridge, 1909. Cambridge University Press. 5/-.

Table I., showing the conjugation of 975 verbs, may be of use to the military student of the language, otherwise the book is rather beyond his scope.

Pitman's Public Man's Guide. Edited by J. A. Slater. 438 pp. 8vo. London, 1910. Pitman. 3/6.

This book contains an explanation of the various terms and phrases to be met with in newspapers and magazines. Attention is chiefly directed to matters political, imperial, diplomatic, and municipal, the requisite information with regard to which is given in outline. To the ordinary individual who takes an interest in the passing events of the day, it is a handy book of reference and conveys information which could otherwise only be obtained from various volumes.

Pitman's Where to Look. Edited by the Publishers. 128 pp. 8vo. London, 1910. Pitman. 2/-.

This book provides a useful index to the more familiar annual books of reference and to a few specified standard works. The books referred to are those most accessible and the subjects included cover a wide field of research.

Siberia: Its Present Condition and its Needs (Сибирь: ея современное состояние и ея нужды). By I. S. Melnik. 294 pp. 8vo. St. Petersburg, 1910. A. F. Devrier 4/2.

A collection of essays on Siberian economics and trade. Geography, Population, Colonization, Trade and Manufactures, the Land Problem, Communications, the Prisons, the Towns, the needs of Siberia. Such are the subjects critically examined by the various writers. Those who used to sum up Siberia as a prison and a mine must change their metaphor. Siberia is shown to be a dominion of great potentiality, where much has already been effected; but it cries for population and education, for capital and communications. The economic results effected by the solitary line of railway across Siberia are remarkable. Formerly, only articles of great value such as gold and furs could bear the cost of transport from Siberia to foreign markets; capital turnover was slow, and business was concentrated in the hands of a few powerful houses. Credit and monopoly had been the features of Siberian trade.

When the railway was opened, the old trade organization broke up. The value of the great river system for distribution came to be appreciated; exports increased by leaps and bounds; capital turnover quickened; decentralisation of trade resulted. Gold and furs gave place to butter, eggs and game, which now are able to reach markets beyond the limits of Russia. But the Sibiryak complains that while he is able to sell his farm produce only at a bare profit, he is obliged to pay exorbitant prices for imported manufactures. Often the settler can find no market for his corn, as the present railway charges may absorb the whole price of sale. The constant cry is for lower rates, for more steamers, more railways, more roads, and for the encouragement of an Arctic trade route from the mouth of the Yenesei.

The military demands on the Siberian railway during the Russo-Japanese war paralysed the newly-found trade, but the situation was saved by the immense purchase by government of cattle and produce, as well as by the local demand set up by the passage of the troops, all of which alleviated the sudden dislocation of trade due to the war.

A Century of Guns. By H. J. Blanch. 153 pp., with numerous illustrations and an index. 4to. London, 1909. John Blanch and Son. 5/-.

This work contains an account of the evolution of modern sporting guns, rifles and pistols, which is of considerable interest to a collector, though, perhaps, not of first importance from a military point of view.

The last chapter deals with modern rifles, and contains a severe criticism on the service rifle, particularly with reference to the method of attaching the butt to the body, the position of the locking lugs, and the fine adjustment.

There is an appendix which contains two interesting tables which give details regarding military magazine rifles, and diagrams of various military rifle cartridges.

CAVALRY.

The Dutch Riding Schools, 1857 to 1907 (Die Nederlandsche Rijscholen). By J. Steenkamp. 167 pp. 4to. Breda, 1909. Kon. Mil. Academie.

The book is a history of the Dutch riding establishments from 1857 to 1907. It is illustrated with numerous photographs.

Cavalry (Reiterdienst). A Critical Survey of the Rôle, Tactics, Training and Organization of our Cavalry. By General Fr. von Bernhardi. 397 pp. 8vo. Berlin, 1909. Mittler. 8/6.

In this important work Gen. v. Bernhardi examines and develops his previously expressed views on modern cavalry by the light of history and of the recently published German "Cavalry Drill Regulations."

In introducing his subject the author agrees in a measure with those who hold that, of all the arms, cavalry has suffered most in value through the improvement in modern weapons, but he maintains that, in certain directions, its sphere of usefulness has extended and requires to be dealt with by new methods.

Speaking generally, he holds that the great decisive cavalry charge is a thing of the past though still a possibility, and bears out his contention by reference to history and by close reasoning. At the same time he shows how easily such attacks may be warded off and how in future it will be necessary to pave the way for them with fire action and thus introduce a mixed element into the fight.

The services of exploration, of screening and of raids have, he says, become by far the most important duties of modern cavalry.

The book is divided under three main headings, the rôle of cavalry, peace training and organization. The first of these occupies two-thirds of the book and deals with almost every phase of cavalry duties in war.

The author frequently finds himself at variance with the principles laid down in the "Cavalry Drill" and criticises it freely, none the less that he acknowledges a share in its composition. He thinks that the German cavalry should for the moment be regarded as being in a transition stage, having not yet been permeated by the principles which should govern its action under modern conditions, and that the "Cavalry Drill" should be looked on as provisional. He can find no light in history from the time of Frederick the Great and Napoleon right up to the latest examples in Manchuria, as to the proper conduct of cavalry in a future war, but thinks that of all campaigns the American Civil War can most profitably be studied by cavalry officers.

He deals first with the service of reconnaissance from the point of view of the army cavalry down to that of the small patrol. This is followed by a chapter on screens which the author classes as offensive and defensive. The former is only used by an advancing army and where a defensive screen cannot be formed. It consists of patrols pushed up all roads leading to the front supported by stronger bodies of cavalry, cyclists, and where necessary the other arms. The defensive screen consists of patrols holding the approaches in chosen localities (especially woods) and supported by formed bodies ready to attack the enemy should he break through. The author remarks that the divisional cavalry will have to be supplemented for these duties.

The author then turns to the subject of raids with which he deals at considerable length, finding himself in disagreement with the "Cavalry Drill" which lays down that they should only be undertaken when there is a superfluity of cavalry and must not deter troops from playing their part in a general engagement. The author holds that on account of the sensitiveness of the modern army's communications such enterprises have increased in importance as the value of cavalry on the main battle-field has diminished. He thinks that under modern conditions a cavalry division would exercise more influence on the decision of a great battle by riding round the enemy's army, as did General Stuart at Gettysburg, than by being present at the decisive point. He examines the conditions necessary for success in such undertakings and thinks the German cavalry division of six regiments too weak to undertake them. He therefore advocates augmentation of strength and the addition of cyclist battalions.

In his chapters on the action of cavalry, the author distinguishes sharply between cavalry acting independently and cavalry in combination with the other arms. He thinks that, for various reasons, cavalry will be driven to use the firearm more often than is generally thought, the most cogent reason being that such tactics may be dictated by the enemy even though he may be the weaker. The fact that the cavalry of a possible enemy frequently advances on foot and strengthens its cavalry divisions with cyclist battalions, infantry and even sometimes mounted infantry points to a remarkable leaning towards fire action and to use horses merely as a means of mobility as the Boers did. The author examines the fighting round Mars la Tour from the point of view of dismounted action, and comes to the conclusion that the German cavalry would nowadays be best used to attack on foot La Grèyère and the wood to the north, which were the decisive points on the French right. He holds that the true spirit of cavalry action of the future must be a judicious combination of fire action and shock, and quotes General Stuart's actions in America as well worthy of emulation.

In dealing with dismounted action, the author criticises the "Cavalry Drill" for laying down that attacks on foot must be brought to a conclusion with the utmost rapidity, and only undertaken when superiority is assured to the attacker. This does not allow for the grave situations where the army cavalry may be obliged by the strategical situation to attack some locality, cost what it may, without any such overwhelming superiority. Cavalry, like the other arms, should be prepared to fight on to the last man when the occasion demands, as did the Japanese cavalry brigades at Sandepu. He disagrees with those who advocate the substitution of a bayonet for the sword, holding that the sword has its use and its loss would tend to lower a cavalryman's self-confidence.

Cavalry action mounted and dismounted against the various arms is handled in detail. Contrary to the principles of the "Cavalry Drill," the author thinks that the teachings of experience demand that the second lines should not be used to fill gaps in the first, but that the attack in two lines, so successful in the past, should remain the ideal of the German cavalry.

A chapter is devoted to the question of attacking in lines or echelons, which is discussed both historically and from the standpoint of modern developments. The principles of the various formations for movement are also dealt with, and a chapter is devoted to the tactical value of units, the author here reiterating his view that not only is the German cavalry division too weak, but that the brigades of two regiments will be unable to carry out an independent mission.

The second part of the book deals with peace training looked at from the practical point of view of preparation for war. A series of short chapters deal with the individual training of man and horse on a progressive system, the result of experience. Stress is laid on the desirability of a longer individual training for the remount and a more constant flow of young horses into the ranks.

Value is attached to the simultaneous training of the man in musketry and riding, so as to save more time for war training, while stress is laid on the necessity for developing his self-reliance.

Field training, thinks the author, should conclude not only with manœuvres but with a great reconnaissance. He discusses this and offers numerous practical hints which would be of service to leaders at manœuvres.

He then deals with the battle training for formations of all strengths. The practical in war in his watchword, and from this point of view the various considerations as to the battle of encounter and the proper value of fire action are discussed.

In conclusion, the author deals shortly with the German cavalry organization, holding that, for war, brigades of three regiments, strong cavalry divisions properly supplied with everything necessary to their independence and the creation of cyclist battalions are necessary to give the army cavalry its proper offensive value. He asks for more scope for the Inspector-General of Cavalry in the performance of his duties.

The book is replete with useful matter for cavalry officers and others interested in the subject, and crystallises much abstract and vague teaching into sound argument and clear language. It has an excellent index.

A translation of this book will shortly be published by Rees.

Cavalry Studies (Kavalleristische Studien). By Major-General M. von Czerlien. 77 pp., with sketches in the text. 8vo. Vienna, 1909. Seidel and Son. 2/-.

The author of this pamphlet is well known in Austria-Hungary as a writer on cavalry subjects, contributions from his pen having appeared from 1880 onwards.

The present publication contains four separate studies:—

(1) Cavalry machine guns at the 1908 manœuvres in Austria-Hungary. (2) Modern artillery in conjunction with cavalry. (3) A cavalry attack upon infantry at the German Manœuvres in 1908. (4) The German Cavalry Regulations, 1909.

Of the above studies the first is of little importance as it is merely based upon far fuller articles by Captain Viktorin which have appeared in "Streffleur's Magazine." The second occupies more than half the pamphlet and is perhaps the article most worthy of study. The third describes an occasion in the German Manœvures of 1908 when an opportunity was offered for a cavalry attack upon infantry on a large scale. The fourth study contains merely a few notes and comments.

Field Service Regulations for the French Cavalry (Instruction pratique sur le service de la Cavalerie). French War Office. 320 pp., with diagrams. Small 8vo. Paris, 1909. Lavauzelle. -/10.

These regulations replace those bearing the date of 1st September, 1908, but contain no changes of importance. The chief point of interest is the addition on page 303 of a scale of rations for use on field service, with instructions regarding the issue of these rations and other details for the guidance of commanders of units.

Cavalry in Battle (Le Combat de Cavalerie). By T. Large. 70 pp. 8vo. Paris, 1908. Berger-Levrault. 1/8.

This book, which deals principally with cavalry evolutions and movements, is really an energetic protest against certain deficiencies in the Cavalry Training Manual. The author declares that many formations, such as echelons, are not clearly defined, and that this has resulted in various interpretations and consequent confusion. Organization, i.e., preparedness acquired by constant practice of movements likely to be required on the field of battle, is essential for cavalry, and for cavalry officers, if they are to fulfil tasks in war which can only be assigned to them in very brief orders or instructions.

The author makes various suggestions, all tending to simplify and codify the movements of cavalry; echelons are more particularly dealt with, and the author gives a description of an ideal formation of this nature, viz.: "echelons perfectly connected together and manœuvring in the wake of the leading echelon."

A Squadron, the Training of its Horses (Un Escadron, le Dressage). Captain Chauveau. 111 pp. 8vo. Paris, 1909. Lavauzelle. 2/-.

The most noteworthy passages of this book have reference to the training of remounts. The author gives some interesting information, based on careful observation, both with regard to the instinct and natural powers of the horse, and how these should be taken advantage of in its training. Captain Chauveau also advocates reform in the instructional methods of Saumur, which he stigmatises as out of date now that officers are only called upon to train men for serving the shortened period of two years with the colours.

Italian Regulations for Cavalry Maxim gun Sections (Regolamento di Esercizi per le Sezioni di Mitragliatrici da Cavalleria). Official. 110 pp. 8vo. Rome, 1909.

Nearly 100 pages of this handbook are taken up with a detailed description of the Maxim gun and its equipment, and with the drill and progressive instruction of the personnel.

The cavalry regimental machine gun section is composed of 2 guns carried on pack horses under a subaltern officer with a section numbering in all 26 non-commissioned officers and men and 40 horses. The section is divided into gun detachment, the 1st echelon of ammunition supply and the reserve ammunition supply. Each gun is followed into action by two pack horses each carrying 3,000 rounds of ammunition, 3,000 additional rounds per gun being carried in the 1st echelon and 16,000 in the reserve.

The annual course of musketry for each machine gun is as follows:—

1st period (5,000 rounds).

This is executed at short ranges, the object being to accustom the gun detachments to firing with ball ammunition.

Rectangular Targets 13 feet by 15 feet.

2nd period (1,000 rounds).

Fired at distances between 500 and 1,000 yards. Some practices with targets as in the 1st period, some practices at targets representing skirmishers standing and kneeling.

3rd period (2,000 rounds).

Fired at unknown distances, at targets representing skirmishers kneeling and lying.

Two natures of fire are laid down. (*a*) Continuous. (*b*) Intermittent, that is to say, gusts of fire lasting from 3 to 4 seconds.

The object of the cavalry machine gun commander should be to make such good use of his weapon that the cavalry can continue their forward movement without being compelled to employ a portion of their strength in dismounted action.

Against infantry, it is recommended to engage at between 500 and 1,000 yards: unshielded artillery can be engaged with good effect at 1,500 yards, while shielded artillery must be taken in flank.

In the cavalry combat, machine guns should endeavour to get near the main body of the enemy and to surprise it. If the machine guns are placed on ground dominating the scene of the cavalry combat, the horse artillery will probably come into action near by and the machine guns may be utilised to protect the horse artillery against a surprise attack: in these circumstances they should be sufficiently far from the artillery to be secure from fire aimed at the battery, but sufficiently near to be protected by the battery escort.

Machine guns should not attempt to change their position during the cavalry fight, and the pair of guns should rarely be separated in any circumstances.

FORTIFICATION AND MILITARY ENGINEERING.

Regulations for Siege Operations (Instruction générale du 30 Juillet, 1909, sur la guerre de siège). Official. 92 pp. 8vo. Paris, 1909. Lavauzelle.

These new Regulations which supersede those of the 4th February, 1899, are divided into two main parts, viz.:—Attack and Defence. Each part is further subdivided into (*a*) General Principles; (*b*) Organisation of the army and duties of the various branches; (*c*) Operations.

The opening chapter of Part I. lays down that the supreme Commander-in-Chief decides on the nature of the operations to be undertaken against a fortress. If this blocks the communications of the field army, if it contains resources, the loss of which would vitally injure the enemy, or if its military or political importance is such that its fall would have a great moral effect, then it should be attacked. Otherwise it can be masked or invested. In discussing the various methods of attacking a fortress the Regulations state that a bombardment should not take place until the regular supply of ammunition is assured.

The commander of a besieging army has the status of a general commanding an independent army. His Chief of the Staff not only superintends the Staff but is responsible for the telegraphic, aeronautical and topographical services. The artillery is under the control of the artillery commandant and is grouped in the "front of attack." The artillery commandant is directly responsible for such narrow gauge railways and telegraph lines as are necessary for the working of the batteries. On the other hand, the engineers, although under the technical control of the C.R.E., are allotted to the various sections of investment. As soon as the attack is in touch with the principal line of defence of the fortress, the engineer commandant of each section of the front of attack details a field officer who acts as an intermediary between the engineers and the troops furnishing working parties.

The chapter on siege operations gives regulations for the investment, the driving in of the enemy's advanced troops, the selection of the "front of attack," the scheme of attack, the construction of the siege batteries and the protective infantry line, the advance by sap and mine, and finally the assault. The besieging batteries are to open fire simultaneously and when all preparations have been made for the regular supply of ammunition.

Part II. opens with a description of the duties of the governor of a fortress on the outbreak of war and approach of the enemy. The principles of defence are laid down and special attention is drawn to the necessity for offensive operations and the preparation of advanced positions, which should, however, be within the range of the heavy guns of the principal line of defence. The organization of the defending army is based on the necessity of having:—(*a*) Garrisons for the outer sections or sectors; these troops are responsible for the defence of the various advanced positions; (*b*) Garrisons of the *points d'appui* of the line of forts; (*c*) Garrison of the fortress proper; (*d*) General reserves.

As soon as the enemy's "front of attack" has been opened, the governor nominates a commander of the zone of attack (*terrain des attaques*). The duties of each arm are much the same as those laid down in Part I. for the Attack. It is distinctly ordered that an ascent of a free balloon is only to take place by the governor's order.

The operations of the defence comprise the defence of the advanced positions, which must not be held too obstinately, the organization of the principal line of defence (consisting of forts, batteries for heavy guns, and infantry trenches), rallying positions in rear of the main line, which are to be made as soon as the enemy's "front of attack" is known, and the defence of the centre of the fortress. The artillery may be divided into two categories, viz.:—that which is completely defiladed and that which is only partially defiladed. In addition there are the mobile and reintorcing artillery, the latter being principally obtained from that part of the line not directly attacked. Finally, instructions are given for the protection of a town or place against bombardment.

HISTORICAL.

The War of 1809 (Krieg, 1809), vols. III. and IV. By Lieutenant-Colonel von Hoen, Major von Vedropolje and Captain Kerchnawe. Vol.

III., 751 pp., with 7 maps and 11 sketches; vol. IV., 803 pp., with 12 maps and 11 sketches. Vienna, 1909 and 1910. Seidel. 30/- each.

These volumes (vols. I. and II. were noticed in No. 6 R.P.M.I., p. 19, July, 1908), have been prepared in the Historical Section of the Austro-Hungarian General Staff. They are based on the original reports, supplemented by information from other authentic sources, and contain an exceptionally detailed account of the campaign.

In Vol. III., "Neumarkt, Ebelsberg—Vienna," the operations of General Hiller's forces are described, commencing from the period, 22nd to 26th April, during which Bavaria was evacuated, and concluding with the capitulation of Vienna and Napoleon's entry into that capital on the 12th May.

Vol. IV. deals with the operations of the main army under the Archduke Charles from the 24th April, until the battle of Aspern, 21st and 22nd May, inclusive. Both volumes contain appendices giving orders of battle and copies of documents to which reference is made.

1809 From Ratisbon to Znaim (De Ratisbonne à Znaïm). By Chef d'escadron d'artillerie Buat. 2 vols. 321 + 416 pp. Royal 8vo and atlas of 22 maps. Paris, 1909. Chapelot. 20/-.

These volumes form a continuation of General Bonnal's book, *La Manœuvre de Landshut*, which concluded with the battle of Eckmühl and the retreat of the principal Austrian army to the north bank of the Danube. They deal with the march on Vienna, the battles of Essling and Wagram, and the action of Znaïm.

The author has provided a most valuable work, with all the details of organisation, intelligence and orders, necessary for the military study of the campaign. For his facts he relies, as regards the French Army, on the archives of the War Office and the publications of the Historical Section of the General Staff, Paris, and as regards the Austrian Army principally on the writings of Colonel von Angeli, "The Archduke Charles," and Captain Krieglstein, "Aspern and Wagram." The work of the Austrian General Staff "Krieg 1809," only came into his hands during the printing of his book, and therefore has not been fully utilised.

The numerous maps show the forces with great clearness and enable the narrative to be followed with great ease.

My Life in the Army. By Robert Blatchford. 132 pp. 8vo. London, 1910. The Amalgamated Press. 6d.

Mr. Blatchford enlisted some forty years ago, served seven years and left the colours with the rank of sergeant. His pamphlet is of historic interest as it describes a race of officers and men, and a system of drill, musketry and training that have ceased to exist in this era. The author, as is well known, is very appreciative of the value of military training, even as it was in the service of his days. A supplement describes his impression of the German Army at the Imperial Manœuvres of last year.

The Royal Monmouthshire Militia. By Captain B. E. Sargeaunt, 12th Bn. the London Regt., London. 301 pp. 29 plates. London, 1910. Royal United Service Institution. 42/-.

This is not an ordinary regimental record, but comprises much concerning the general military history of the country, with particular reference to the County of Monmouth. The author has traced the origin and progress of all the regular and auxiliary regiments which have been raised in that county.

The history of the Royal Monmouthshire Militia is given from the year 1660 up to the time of its transfer to the Special Reserve. An excellent account is given of the doings of the regiment during the embodiments at the time of the Napoleonic Wars.

The Royal Monmouthshire Militia at its formation comprised a troop of horse as did also many of the other county militia; these troops of horse were not abolished until the end of the seventeenth century.

Among the illustrations is a photograph of a ballot paper of 1781 informing a person that he was "chosen by lot to serve in the Militia," and directing him to appear to take the required oath or to provide a substitute; it is signed by the Constable of the Ward.

Fifty Years of New Japan. By Count Okuma. Two vols. 1,242 pp. 8vo. London, 1909. Smith, Elder and Co. 25/-.

These volumes are intended to serve as a record of the progress made by Japan in various directions during the fifty years 1854-1904. The various sections of the history have been prepared by well-known men, specially qualified to write on their particular subjects, as they have in many cases taken an active part in the development of the country. For instance, the history of the army is the work of Field-Marshal Prince Yamagata, while that of the navy has been written by Admiral Count Yamamoto. There are fifty-six chapters in all, dealing with every branch of the national development, whether military, commercial, educational or religious. In every case a brief resumé of events since the earliest times is given, and in some chapters this resumé is not the least interesting part. There is an excellent large scale map of Japan.

Although the point of view throughout is exclusively Japanese, the volumes contain a quantity of useful information and form a valuable work of reference.

The War of 1870-1871. The Investment of Paris. II. Châtillon (La Guerre de 1870-71. L'investissement de Paris. II. Châtillon). By the Historical Section of the General Staff of the French Army. Text 534 pp. 8vo. Appendix of documents 406 pp. 12 maps, in separate cover. Paris, 1909. Chapelot. 16/-.

This is Volume II. of the Section of the French official account of the war of 1870-1871 dealing with the siege of Paris. Volume I. "The organization of the fortress" appeared in 1908 and was reviewed on page 63 of No. 9, R.P.M.I.; April, 1909.

This instalment contains two sections: the "Guarding and destruction of the communications" and the "March of the German armies from Sedan on Paris"; it concludes with the action of Châtillon on the 19th September, 1870.

Souvenirs of a Mobile of the Sarthe (Souvenirs d'un Mobile de la Sarthe). By D. Erard. 244 pp., with sketch map and portraits. 8vo. Le Mans, 1909. Librairie de Saint Denis. 3/-.

The author joined the 33rd Regiment of the Garde Mobile, 16th Corps, Army of the Loire, in October, 1870, as a private, and remained with the colours, except for three days' absence due to a rheumatic knee, until the close of the war, rising to the rank of colour-sergeant. He took part in the actions of Coulmiers, Villepion, Loigny, Beaugency, Changé, Le Mans and Saint Jean sur Erve.

His souvenirs are founded on the diary which he kept, and present the daily life in war of an intelligent improvised soldier.

M. Erard makes it quite clear throughout his book that he attributes the good fighting value of his battalion to its having had the good luck to obtain a retired regular officer as its lieutenant-colonel and an ex-officer or ex-non-commissioned officer for the command of each company.

The temporary absence of these officers, owing to wounds or sickness, had a very marked effect on the *moral* of the men, who had no confidence in amateur commanders.

It is curious to find how little real enthusiasm the inhabitants showed for the war and for their countrymen who were trying to keep the enemy from their doors. The troops suffered from semi-starvation because the inhabitants would supply no food except on payment, and experienced the miseries of cold and sleeplessness because when billeted they were put into outhouses and barns without means of warming themselves, and were debarred from entering the houses.

The greatest miseries were suffered by the wounded, many of whom died of gangrene for lack of proper medical organization and material.

In spite of the hopeless inferiority of the "gardes mobiles" to the German infantry, they had no difficulty in beating off any attempt at shock action by the German cavalry. The first time the battalion was charged by cuirassiers it was very nervous, but on subsequent occasions exhibited entire unconcern. Only a few "francs tireurs," armed with muzzle loaders, who were making their way across country, actually fell victims to German sabres.

The author relates how complete ignorance of the German language was a very serious embarrassment to the French in night fighting; when they heard the enemy's words of command and shouts they could not understand them. The mistaking of the cry of German patrols at night "Bist du's" for "Viens donc" led to considerable mystification which was not cleared up until after the war. Lack of knowledge of the enemy's uniforms on several occasions nearly led the battalion into disaster, for the officers mistook Germans for their own troops.

It is of interest to find that the natural impulse of the "mobiles" when defeated was to rendezvous at their last sleeping place, and that they fought best when removed from the vicinity of their homes and the influences of their ordinary lives.

The work is thoroughly deserving of study both by soldiers and civilians as a plain unvarnished tale of the failure of an extemporized army.

Autobiography of Sir Harry Smith, 1787-1819. Edited by G. C. Moore Smith, M.A. 333 pp. 8vo. Portraits and Maps. London, 1910. Murray. 2/6.

This is a cheap edition of a portion of one of the most fascinating of military autobiographies. It contains the period of Sir Harry's life of most interest to soldiers:—The Peninsular War, the Washington Expedition, the New Orleans Expedition, and Waterloo, and closes in 1819 when he was a lieutenant-colonel, and the occupation of France after Waterloo came to an end. For those who would follow his career through the Kaffir War of 1815, the War in Gwalior of 1843, the first Sikh War of 1845-6, and his governorship of Cape Colony 1848-52, during which he defeated the Boers in Boomplats, the larger work is still available.

The University and the Study of War (An inaugural lecture delivered before the University of Oxford). By Spencer Wilkinson. 28 pp. 8vo. Oxford, 1909. Clarendon Press. 1/-.

This lecture is described by its author as an attempt to set forth the scope of the task which he has undertaken, and to interpret the purpose of the University in conferring its freedom upon the study of Military History.

In the first part of his address Mr. Wilkinson shows how political thought in England is at last reluctantly coming to regard peace from a different standpoint to that which was accepted not many years ago; and how the foundation of the Chair, of which he is the first occupant, so far from being a fortuitous event, is the natural consequence of that close connection which exists between the national life and

Oxford. After his preface, Mr. Wilkinson proceeds to develop his main idea, which a few words must suffice to indicate. War, he says, is one of the modes of human intercourse. The study of man is therefore essential for the formation of true ideas, and to none is the knowledge thus gained more important than to those who aspire to become leaders in the State.

Commentary Notes by the Archduke Albrecht on the Battle of Solferino (Randbemerkungen des Erzherzogs Albrecht über die Schlacht von Solferino). Communicated by Lieut.-General E. von K. 28 pp. 8vo. Vienna, 1909. Danzer's Armee-Zeitung Press. 1/-.

This short pamphlet (a reprint of articles from Danzer's Armee-Zeitung), is of some little interest since the ideas personally expressed by the Archduke in his criticism of the 1859 campaign were subsequently practised by him with success at Custozza in 1866. It has been stated in some quarters that the results in this battle were really due to the initiative of the Archduke John, Albrecht's Chief of the Staff, but the publication of these present notes (written in 1862) goes far to disprove this assertion.

Official History of the Russo-Japanese War.—Part IV. Liao-Yang. Prepared by the Historical Section of the Committee of Imperial Defence. 120 pp. 8 maps. 8vo. London, 1909. H.M.S.O. 4/-.

The fourth part of this work deals with the battle of Liao-yang, and the events preceding and following it from 23rd August to the 10th September, 1904. On page 7 the immediate defences of the city of Liao-yang are described as "permanent works" and "forts."

This is an error; the works were, in reality, "provisional defences" and consisted exclusively of strong field works.

Impressions of some of the Manchurian Battlefields. Lecture by Lt.-Colonel W. D. Bird, D.S.O. 15 pp. 8vo. 8 maps. London, 1910. Rees. 6d.

Lt.-Colonel Bird was one of a party of officers from the Indian Staff College sent on a tour round the Manchurian battlefields in 1907. The lecture gives his impressions and contains some topographical descriptions of the country, which will be found of considerable use by officers studying the campaign.

Russo-Japanese War (Der Japanisch-Russische Krieg. iii. Teil). By General Von Lignitz. Pages 291 to 498, illustrated. 8vo. Berlin, 1910. Vossischen Buchhandlung.

This is a continuation of a series, and deals with the early assaults on Port Arthur, the attack at the end of October, and the battles of Liao-yang and the Sha Ho. It contains some interesting comparisons with events of previous wars, and will be found interesting reading, though some of the authorities quoted are of doubtful value.

Monographs in Military History. The battle of Sha Ho (Kriegsgeschichtliche Einzelschriften. Die Schlacht am Scha Ho). Issued by the Historical Section of the German Great General Staff. Series 45/46. 258 pp. Separate case containing 11 maps. 8vo. Berlin, 1909. Mittler. 7/2.

The title explains the scope of this, the fifth monograph dealing with the Russo-Japanese War that has been issued by the German Great General Staff. The work will be reviewed in detail when the English version is published.

Russo-Japanese War Monographs. Vols. XVI.-XVII. (Einzelschriften über den Russisch-Japanischen Krieg. 16 u. 17 Heft). 110 pp. Table of contents, 6 maps. 2 Orders of battle. 5 sets of photographs and panorama sketches. 8vo. Vienna, 1909. Seidel. 5/-.

This is one of a series of monographs issued as supplements to *Streffleur's Militärische Zeitschrift.* The volume under review describes the actions of Yu-shu Ling and Yang-tzu Ling. The narrative is based chiefly upon the reports of various foreign attachés to whom the authors (Colonel v. Habermann and Captain Nowak) acknowledge their obligation. The writings of Captain Swejtschin (*sic*) who fought on the Russian side at Yang-tzu Ling are freely quoted, and reference is also made to von Tettau's book and Kuropatkin's "Report" to the Tzar.

The actual account of the fighting is preceded by character-studies of Generals Keller and Sluchevski, who commanded the two chief groups into which the Russian forces were divided. The orders issued to the troops on the Russian side and their movements before the actions are summarized and discussed. The last twenty-two pages are devoted to criticisms. The appendices include: a general map showing the situation on the 30th July, 1904; three maps showing phases of the fighting at Yu-shu Ling and Pien Ling; two illustrating the fighting at Yang-tzu Ling; orders of battle of Russian and Japanese forces engaged; table of Russian losses; table showing the expenditure of ammunition by the Japanese; sketches and

photographs of the country and positions around Ta wan, Pien Ling and in the Hsi Ho valley.

The various episodes of the fight are described in great detail. Especially interesting are the very full account of the fighting and movements of several artillery units and the graphic story of Keller's death and of the numerous mishaps, misunderstandings and omissions on both sides. The ill-success of the Russians is attributed to:—(1) constant changes of plan, and hesitating attitude in high quarters which affected the *moral* of the troops, (2) want of precautions, (3) lack of unity in command, (4) the holding back of many guns and the premature withdrawal of others that were engaged, (5) the non-employment of a whole (3rd East Siberian Rifle) division. The Japanese plan is praised, but its execution is criticised; its chief faults are alleged to have been:—Employment of too many troops to guard flanks and communications, slow movements of troops, lack of co-operation by some commanders, unduly wide extensions, half-hearted attacks. The transliteration, which differs from ours, must prove a stumbling-block to British readers. In some cases the nomenclature differs, *e.g.*, the Fu-chia Shan of our official history is termed Makurayama, General Gerschelmann is called Herscheimann, etc. The maps of the battles are a little confused owing to the great detail in which movements and positions of small units are shown. Despite this the book is full of interest and instruction.

(Previous volumes were reviewed in R.P.M.I., No. 1 of 1907, and No. 4 of 1908.)

A Short History of the Chief Campaigns in Europe since 1792. By General A. von Horsetzky. Translated by Lieutenant K. B. Ferguson. 493 pp., with index, 6 maps and numerous sketches. 8vo. London, 1909. Murray. 18/-.

This translation is an abridgment of the Austrian original, but the utility of the work as a manual of military history does not appear to be affected thereby.

In the first chapter the translator has summarized the author's introduction, his remarks on tactics, organization, armament, &c., at successive stages in the development of military science, and his concluding remarks.

The remaining chapters consist of short summaries of the various campaigns in Europe, up to and including the Graeco-Turkish war of 1897, arranged in chronological order. The main facts of each campaign are given, but no remarks or comments are offered.

The original German version contains 38 large maps, which are replaced in the present abridged translation by 6 maps and numerous sketches.

German East Africa in Rebellion during 1905-06 (Deutsch-Ostafrika im Aufstand, 1905/6). By Graf von Götzen. 274 pp., with 6 coloured illustrations and 5 maps. Berlin, 1909. Dietrich Reimer. 12/-.

This book is of special interest as the author was Governor of the Protectorate in 1905.

It will be remembered that on the 7th August, 1905, a native rising commenced in the Matumbi Mountains, north of Kilva-Kivinje, between the Rivers Rufiyi and Mandandu. This rising spread gradually, involving the districts in the centre, south, south-west and on the coast as far north as the district of Dar-es-salaam. In numerous small engagements the Protectorate troops were everywhere successful, but reinforcements were found necessary, and marines were sent from Germany for the purpose. Early in 1906 the rising was officially announced as at an end.

The book gives an interesting account of the native tribes, and their manners and customs. A detailed account of the military operations follows; the conclusion is arrived at by the author that a stronger garrison is required than existed at the period in question.

Two Years on Service with the Train in South-West Africa (Zwei Kriegsjähre beim südwestafrikanischen Train). By P. Eckardt. 110 pp. 8vo. Berlin, 1910. Deutscher Kolonial Verlag. 2/-.

The author, an infantry reservist, volunteered for service in German South-West Africa early in 1905 and was accepted as a vice-sergeant-major (*Vice-Wachtmeister*) of the Army Service Corps (*Train*). He gives a graphic description of his many treks during his two years' service in the south of the Protectorate in charge of a supply column (*Staffel*).

The Revolution in Constantinople and Turkey. By Sir W. M. Ramsay. 323 pp. 8vo. London, 1910. Hodder & Stoughton. 10/6.

This book is mainly a reproduction of a diary kept during a visit to Constantinople and Asia Minor in April, May, and June, 1909.

Sir William Ramsay was in Constantinople from 20th April to 5th May, and was therefore an eye-witness of some of the most momentous scenes in Turkish history. His remarks on the position of England and Germany in Turkey merit attention; he considers that the best interests of these two Powers in that country are identical.

During his travels in Asia Minor he states that, in villages where he and Lady Ramsay had repeatedly experienced the greatest kindness and hospitality, he noticed an air of greater restraint. This he regards as one more indication of the growing antagonism between Asia and Europe. Incidentally the author pays a tribute to the assistance given him by the Military Vice-Consuls who were in Anatolia from 1879 to 1882.

A History of Malta, During the Period of the French and British Occupations, 1798-1815. By William Hardman. 648 pp. and index. With two illustrations. 4to. London, 1909. Longmans, Green & Co. 21/-.

This interesting and valuable history of Malta is due to the zeal of the late Mr. Hardman of Valetta. The sole object of his deep research and infinite labour "has been to learn the truth" for those interested in the events of the years 1798-1815, as far as they concern Malta's relation to the British Empire.

Mr. Hardman died before his material was prepared for the Press, and the work was, at the request of his executors, edited by Dr. Holland Rose, by whom an exhaustive introduction has been written.

The history contains exhaustive accounts of the attack and capture of Malta by the French, and of the French government of the Island. The British blockade leading up to the capture of Valetta forms the subject of six chapters. In the 21st and 22nd chapters will be found interesting discussions and correspondence relating to Malta, which show in correct perspective the place and influence of the Island in the war waged by Great Britain between the years 1803-1815.

The Reminiscences of Carl Schurz. 3 vols. 1,300 pp. Many illustrations. 8vo. Printed in New York, U.S.A., title page: London, 1909. John Murray. 36/-.

Although these three stout volumes record the life of a German-American politician, they contain very much of great military interest. Carl Schurz is that General Schurz whose division of the XIth Corps stationed on the right flank of the Federal Army at Chancellorsville, in May, 1863, broke and fled before the attack of "Stonewall" Jackson.

Born near Cologne in 1829, the son of a schoolmaster, he joined the revolutionary movement of 1848, had to flee from Russia, and, after a stay in England, decided to emigrate to the United States, where he arrived in 1852. He settled in Wisconsin and devoted himself to law, lecturing tours and politics. Identifying himself with the Republican party, he was one of the delegates of the State of Wisconsin at the Convention which nominated Lincoln for President; and he assisted much by his speeches and influence to secure the German vote for his side.

After Lincoln's election and inauguration something had to be done by the "Party" for Schurz, and he was sent as American Minister to the Court of Madrid. This, however, did not please him; war with the South was imminent and he wanted to be a general. He returned to Washington on leave in 1862 and secured from the President a nomination as brigadier-general, which was approved by the Senate. On the 9th June, 1862, at the age of 33, he took up his first command, a division, in Frémont's Corps, in the Shenandoah Valley, without any previous military experience except that gained in the street fighting in the revolution of 1848.

As a division commander he took part in Pope's campaign, but he missed Antietam and was only in reserve at Fredericksburg.

His frank narrative reveals why the XIth Corps was surprised at Chancellorsville. When his Corps commander, General Howard, went with Barlow's brigade to the aid of Sickles' Corps, which was attacking Jackson's rear-guard, Schurz as senior divisional commander remained at corps headquarters; although Jackson's flank movement had been suspected by him and reported, definite news of the presence of a large Confederate force on the flank did not come until Howard had left: subsequently scouting parties reported "that they had seen great masses of rebel troops wheeling into line; that they had even heard the commands of rebel officers." But Schurz did not take the responsibility of doing anything to meet the attack, he merely waited for General Howard's return; before this happened the corps was scattered and fleeing.

On the first day at Gettysburg, Schurz commanded the XIth Corps, as Howard was in command of all the troops on the field, and with the 1st Corps suffered what he called "substantial overthrow."

The "prejudice in the army against the XIth Corps" after these misadventures, which were attributed to the "foreign brigadiers," was so great that after Gettysburg it was proposed to break it up; but certain transfers of units were made and it was then sent away, with the XIIth Corps, under General Hooker, to the West. There Schurz's division took a slight part in the night affair of Wauhatchie, was in reserve at the battle of Chattanooga, and made the march for the relief of Knoxville. This was the general's last active service. Reflections on his conduct at Wauhatchie in General Hooker's official report, led to his demanding a court of enquiry. He accuses his commanding officer of "outrageous misrepresentation of facts and calumnious assault," but although the Court practically exonerated him from the charges of delay and disobedience made by Hooker, he was removed from the XIth Corps and sent to the command of "a so-called camp of Instruction" near Nashville.

There, however, he did not remain long; he soon got himself relieved of military duty to go "on the stump" for Lincoln in the approaching Presidential election. The election over he was sent on a tour through the States of the Union to endeavour to induce men who had served out their three-years' term in the army to rejoin the colours. After this he was ordered to report to General Sherman at Goldsborough; but that general had "no proper command vacant," so General Slocum, commanding the Army of Georgia, appointed him "temporarily as his Chief of Staff." A day later, news of Lee's surrender was received and Schurz's military career shortly after came to an end.

The rest of his life was devoted to journalism and politics, in both of which arenas he became a considerable force. He was elected a Senator of Missouri in 1869, and was Secretary of the Interior in President Hayes' Cabinet, 1877 to 1881. As an anti-Imperialist, opposed to colonial expansion, his influence waned in his later years. He died in 1906.

The portion of the work dealing with the Civil war is the latter part of Volume II. and the commencement of Volume III. It is full of anecdote and contains

interesting character sketches of the various generals. He describes Butler, a fellow politician-general, as follows:—"I found him clothed in a gorgeous militia uniform adorned with rich gold embroidery. His rotund form, his squinting eye, and the peculiar puff of his cheek made him look a little grotesque. . . . Nothing could have been more striking than the air of high authority and the tone of curt peremptoriness peculiar to the military commander on the stage, with which he expressed his satisfaction or discontent, and with which he gave his instructions."

Though a professed admirer of the Northern volunteer and a Republican, Schurz admits the utter lack of discipline in the Federal Army, owing to want of "social class distinction" between officers and men. The "private soldier could not see in his officer the man who might be depended upon to know how to do things in an emergency much better than the men he commanded." "All attempts to maintain very strict order on the march were given up, except in the immediate presence of the enemy when the men saw that it was really indispensable. And so it was with other things concerning which the men substantially exercised and asserted their own judgment as to whether they were necessary or not. And that judgment was then, if at all possible, gradually and silently accepted by the officers."

The book contains a large number of excellent portraits of military and political celebrities.

The War of 1870-1871. General Bourbaki's Campaign in the East of France. Vols. II. and III. (La Guerre de 1870-71. Etude sur la Campagne du General Bourbaki dans L'Est). Anonymous. 530 + 431 pp. 16 maps. 8vo. Paris, 1909-10. Chapelot. 9/- and 8/-.

The first volume of this history was noticed on page 8 of R.P.M.I., No. 7, October, 1908.

The operations of the campaign are described day by day in a complete and thorough manner, the situations, orders and movements being given.

Volume 2 deals with events between the 2nd to 9th January, and Volume 3 with those between the 10th to 17th January, closing with the combat of Chénébier.

The Life and Letters of James Wolfe. By Willson. 511 pp., with illustrations and index. 8vo. London, 1909. Heinemann. 18/-.

A considerable number of biographies of Wolfe have already been published, but the present volume cannot fail to take its place amongst standard works on the subject, in view of the number of his letters it contains which have not hitherto been published. Some of them might have been omitted without detracting from the clear impression of the hero which the book enables the reader to form, but nevertheless little fault can be found with it on this account owing to the admirable manner in which it has been put together.

The life of Wolfe is closely followed from his earliest infancy up to the day of his death at the early age of thirty-three. Being an indefatigable letter writer, the perusal of his numerous letters gives a good insight into his somewhat complex character, and this is further elucidated by information derived by the author from other sources.

The story of the taking of Quebec is clearly and succinctly told and forms by no means the least interesting part, from a military point of view, of an interesting book.

Study of the 1859 Campaign in Italy (Etude sur la campagne de 1859 en Italie). By General F. Silvestre. 110 pp., 7 maps and sketches. 8vo. Paris, 1909. Berger-Levrault. 2/-.

This Study is particularly interesting, for it is the only genuine criticism yet published in France of Napoleon III.'s Campaign in Italy. An official work was compiled in 1860 at the Ministry of War, but its only endeavour was to explain away some of the mistakes committed by French generals, and is therefore in no way reliable. General Silvestre has largely made use of the account of the war published by the Prussian General Staff in 1862, and this fact enables him to point out how necessary a close study of all modern campaigns is to armies which may themselves have to fight under similar conditions. The work of 1862 was not wasted on the German army, for in 1866 and in 1870 we find them avoiding many mistakes committed in 1859 by both the Austrians and the Allies.

The author proves by actual facts how much the Austrians suffered from lack of unity in their command, and how far a central authority, personified in the Allied Army by Napoleon, went to counterbalance the many mistakes committed by the French.

A sketch of the British Occupation of Buenos Aires, and the Revolt of the Spanish Colonies in South America, in the early part of the Nineteenth Century. By Colonel A. J. Godley. 46 pp. One map. 8vo. London, 1910. Rees. -/6.

This is a reprint of a lecture given before the Aldershot Military Society last January, after a visit to South America. It contains a valuable and convenient summary of South American history.

The Armies of the Rhine at the beginning of the French Directorate (Les Armées de Rhin au début du Directoire). By Captain H. Bourdeau. 380 pp. 8vo. Paris, 1909. Charles Lavauzelle. 6/-.

This work deals less with the actual military operations on the Rhine than with the general and diplomatic situation which induced those movements and eventually led to peace between France and Prussia and to the coalition of the rest of Europe against France. The book is very interesting and gives an accurate

account of the European situation at the time. The inner working of the Convention is also carefully explained as well as the interior economy, spirit and composition of the French armies on the Rhine and in Belgium.

At the end of the volume will be found copies of documents issued by the Government of the Directorate, the Minister of War and Generals Commanding-in-Chief, also a few private letters from officials with the armies.

Memoirs of General Griois. Vol. 2 (Mémoires du Général Griois. Tome second). 340 pp. 8vo. Paris, 1909. Plon-Nourrit & Co. 6/8.

The first volume of these memoirs was reviewed in R.P.M.I., No. 11, October, 1909. The second volume deals with the Russian Campaign of 1812, the 1813 campaign in Germany, the 1814 campaign in France, and the siege of Mezières in 1815. The account of the retreat of Moscow is most interesting.

General Griois at first commanded the artillery of the 3rd Corps of the Cavalry Reserve, which was under General Grouchy, of whom the author had a high opinion. But this Corps became absolutely disorganised soon after leaving Moscow, and Griois, so long as he had any artillery, attached himself to Eugène's Corps. The horrors of the retreat are graphically described, and gruesome details of the utter disorganization and general callousness are given. It was a veritable struggle for existence in which the weakest were crushed.

In the 1813 and 1814 campaigns Griois commanded first the field artillery and then the horse artillery of the Guard. He naturally saw much of the Emperor. The memoirs give a realistic account of one of the outbursts of ungovernable rage in which Napoleon occasionally indulged. Some of the Guard Artillery had been captured and both Griois and General Guyot had a bad time.

The memoirs contain interesting sketches of many famous men of that period—Murat, Ney, Eugène, Sebastiani, Duc de Berry, etc.

Souvenirs and Observations of the Campaign in 1870 (Souvenirs et observations sur la guerre de 1870). By General Devaureix. 740 pp., with 3 maps. 8vo. Paris, 1909. Charles Lavauzelle. 6/-.

The author, at the time of the war a subaltern in the line, has been enabled, owing to the fact that he kept a diary, to give in this interesting volume a realistic and absorbing account of the early part of the campaign in which he took part. Taken prisoner at Metz, he was able to amplify during his captivity his daily notes, and in reading the souvenirs thus noted down while still fresh in the author's memory, vivid pictures are evoked of the numerous battles and engagements in which he took part.

There are also many valuable criticisms, emphasized by accounts of the faults committed, which render the volume worthy of close attention from a purely military point of view. Like all those taken prisoner at Metz, the General bitterly criticises Marshal Bazaine.

The author also took part in the recapture of Paris by the regular troops from the Communists, and his description, also based on a diary, throws an interesting light on the various phases of the civil war, the most interesting because no account of the Commune has yet been written by an officer who took part in the second investment of Paris.

A Century of Empire, 1801-1900. Vol. I. 1801-1832. By Sir Herbert Maxwell. 344 pp. with Index. 8vo. London, 1909. Arnold. 14/-.

This book consists, in the words of the author, "of a review of the dealings of fortune and fate with the British Empire and the actions of those chief men who have managed—perhaps at times mismanaged—its affairs during the Nineteenth Century."

In this volume the leading events of the period under consideration (1801-1832) are briefly dealt with, and their immediate and subsequent effect on the Empire traced in a most interesting manner.

The principal occurrences in Parliament are described and an impartial survey of the part played by the principal actors is taken, sufficient detail being given to enable the reader to form a fair estimate of their characters and of the motives which actuated them.

A short outline, containing the main features, of the origin and course of operations, both on land and sea, is given, as also of the negotiations which passed between the ruling sovereigns and of the treaties concluded, in which British interests were involved.

The contents are arranged in chronological order and are presented in such a clear and able manner that events can be followed with ease throughout and a proper value assigned to each.

As a general survey of the British Empire, both at home and abroad, and its relations with foreign powers, this book cannot fail to attract and retain the interest of its readers.

MEDICAL.

A Study of the Health Statistics of the Army and Civil Population (Sanitätsstatistische Betrachtungen über Volk und Heer). By Otto von Schjerning. 116 pp., 37 diagrams, 6 maps, 21 tables of figures. 8vo. Berlin, 1910. Hirschwald. 3/-.

This volume, which is by the Director-General of the German Army Medical Service, contains an analysis of the health statistics of the army and civil population, and was undertaken for the purpose of ascertaining the effect of the enormous

development of industrial life in Germany in recent years on the physical fitness of the German people. With this end in view, von Schjerning divides his subject into three main divisions. The first deals with the health statistics of recruiting and especially with the rejections and their causes. The second part contains an analysis of the admissions and deaths in the army with their causes during the last twenty-five years. The third portion discusses the influence of the army on the nation.

The principal conclusions are, that so far the national fitness for service has not diminished, and that the army has exercised a beneficial effect on the nation both physically and mentally.

The Influence of Bullet Wounds on Military Surgery and Tactics (Die Bedeutung der Schusswunden in Kriegschirurgischer und taktischer Beziehung). By Dr. Eugen Bircher. 57 pp. One plate, several tables. 6¼ in. by 9¼ in. Frauenfeld, 1908. Huber & Co. 1/3.

This work is written for the purpose of advocating an increase in the calibre of the present bullet.

Dr. Bircher cites numerous examples from recent campaigns in support of his contention. A table of losses in the Russo-Japanese War shows that up to 1st May, 1905, 45 per cent. of the wounded either remained in the ranks or were able to rejoin them. The author then proceeds to discuss wounds of various regions and their results. The work contains many interesting observations on the effect of bullet wounds in different anatomical regions in relation to their power of rendering men more or less permanently unfit to rejoin the ranks.

Nursing Manual (Krankenpflege-Lehrbuch). Prepared by the Medizinalabteilung des Kriegsministeriums. 357 pp., 5 plates and 159 illustrations. 8¼ in. by 5¼ in. Berlin, 1909, Hirschwald. 3/-.

In consequence of the resolution passed by the German Parliament, that all persons before being permitted to practise as nurses must qualify by passing the State examination, the Prussian Minister of Education convened a meeting of the representatives of all religious and other orders interested in nursing, for the purpose of drawing up a syllabus of instruction. At this conference a wish was generally expressed that the Government should issue a manual of instruction in nursing. A very strong committee composed of representatives of the Government, the medical schools, and nursing training institutes was appointed to compile an official manual. This book, the one now under review, is to be used for the instruction of all persons, male or female, undergoing training in any civil institute. The manual is divided into 13 parts.

The first portion deals with anatomy and physiology in so far as it is necessary for a nurse to be acquainted with these subjects. The second portion contains a short description of the general symptoms of disease, with a short note on infection and principles of asepsis and the use of antiseptics.

The next section is devoted to the management of sick rooms, their lighting, warming, and ventilation, patients' linen and bedding. The fourth section deals with the nurse's duties to her patient; the handling, washing, lifting, and bathing of patients are fully described and well illustrated. In the next section the feeding of patients is carefully explained, both in regard to the suitability of various foods, and the method of feeding for patients of varying degrees of helplessness.

The sixth section deals with the observation of patients, reports to be made to the medical officer, the administration of medicines, and the various applications which may be ordered. The seventh section describes how the nurse may help the physician when examining a patient or dressing a wound, the handling of broken limbs, preparations for and help during an operation and bandaging.

The eighth section deals with the treatment to be adopted in emergencies. The ninth section is devoted to the nursing of infectious cases with special reference to the precautions to be taken. The tenth section gives a short description of the signs of approaching death and directions for the disposal of the corpse. The eleventh section gives a resumé of all legal enactments affecting nurses. The twelfth section contains general rules for behaviour of nurses to their patients, physicians, clerical visitors, and in respect of professional secrecy. The thirteenth section gives advice as to the management of newly-born children and their mothers.

The Field Ambulance Guide. By Captain G. H. Painton, R.A.M.C. 110 pp. 12mo. London, 1909. Clowes & Sons. 2/6.

This is a handy guide to the contents of and regulations affecting the working of a Field Ambulance. The matter is arranged alphabetically, so that anyone not well acquainted with the equipment of a field ambulance can find out at a glance where any particular article is kept.

The Army Medical Service in the Field in Relation to Tactics. (Feld-Sanitätsdienst und Gefechtslehre in Wechselbeziehung) By Lt.-Colonel Casimir Freiherr von Lützendorf, Austrian General Staff. 107 pp. 20 diagrams, 2 maps. 8vo. Vienna, 1902. Seidel. 4/9.

The writer was for many years director of medical war games, and thus learned how often ignorance of tactics prevented medical officers from properly appreciating the problem set them, and thus caused them to adopt faulty dispositions for the medical units.

The book is an attempt to explain in simple language the tactics likely to be adopted in different military situations, and the medical arrangements which should be made to suit the varying circumstances.

The first chapter deals with battle tactics in general; the next three describe the special work of infantry, cavalry and artillery, in offensive and defensive engagements. The fifth chapter, which forms the bulk of the book, consists of twenty-one problems. Each of these gives some military situation and then shows what medical arrangements should be made, and the reason for the particular plan adopted.

The Management of Evacuation of Wounded by Rail (Studie über die Einleitung der Evakuation mit Vollbahn aus Anlass von Gefechten). By Cron and Beyer. 62 pp. 3 diagrams. 9¾ in. by 6¼ in. Vienna, 1907. Safár. 1/6.

This little work (Monograph IV. of the Army Medical Service in the field) goes very fully into the question of the removal of large numbers of wounded by rail. The use of properly equipped hospital trains is briefly discussed. The writers then deal fully with the improvisation of ambulance trains by the use of empty supply wagons. The use of apparatus, *e.g.*, Brechot-Desprès-Ameline, and Linxweiler, is considered, but for simplicity and rapidity Port's system is recommended.

A number of formulæ are given for calculating the time required to prepare an improvised ambulance train; the number of men required for the work; the time it takes to load a train, and the number of stretcher parties required, also for finding the number of carriages needed to move a given number of wounded in a given time. A concrete example of a problem in evacuation and its solution is given in the last chapter of the book.

An Attempt to Formulate Rules for the Evacuation of Sick and Wounded and for the Organization and Employment of Ambulance Trains (Versuch einer Ableitung von Grundsätzen für Anlage und Durchführung der Evakuation darn für Organisierung und Verwendung von Krankenzügen). By Oberstabsarzt Dr. Karl Cron. 53 pp. 5 tables. 9¾ in. by 6¼ in. Vienna, 1907. Safár. 1/3.

This little work (Monograph V. of the Army Medical Service in the field), discusses the general principles underlying the removal of sick and wounded by rail from the area of operations to the distribution area at the base.

The author first deals with the probable number of daily sick and casualties in minor engagements (apart from casualties in important battles) which will have to be transferred to the base. Taking statistics of the greater wars from the Crimea up to the Russo-Japanese, he shows that 3 per 1,000 of the strength in the field should be an ample allowance for these. After a battle provision must be made for the removal by rail of 10 per cent. of the strength engaged in the fight, to the stationary hospitals in the evacuating area or to general hospitals in the distribution area. This number may be largely exceeded, but should form a fair working basis. Lying-down accommodation must be provided for half the wounded, as many men who can sit up for a short time while being conveyed by wagon to a clearing hospital would have to be given lying-down accommodation on a railway journey of, possibly, one or two days.

The work is written for the Austrian organisation, but contains a great deal of information which should be of the greatest help to anyone studying the problem of removing masses of wounded by rail.

The Wounding Effects of the Modern Pointed Bullet on Men and Animals (Die Wirkung der modernen Spitzgeschösse auf Menschen und Tiere). By Professor J. Fessler. 621 pp. 20 illustrations and 3 plates. 8vo. Leipzig, 1909. Vogel. 7/6.

This work contains the results of Professor Fessler's experiments with the new German 8 mm. "S"—ammunition, and is published with the permission of the Prussian and Bavarian war ministries.

In carrying out these experiments, Professor Fessler received considerable assistance from the authorities of the Bavarian school of musketry.

Altogether, 26,100 cartridges were fired at ranges varying from 10 to 1,500 yards, and 700 hits were obtained on material mainly provided by the pathological and anatomical institutes of the university of Munich. The results of the wounds at each range are given in detail; these afford a mass of interesting information as to the destruction produced in different kinds of tissues at different ranges. The gravity of the injury appears to depend mainly on the position of the bullet when it strikes the body. A bullet striking "point first" produces a somewhat more severe wound than the former ogival bullet. After striking an object, however, the "S" bullet nearly always assumes a vertical, horizontal, or oblique position, *i.e.*, it is travelling more or less "broadside on" when it strikes the next object. In this position wounds, especially of bone or viscera, at near ranges are extremely severe.

Photographs of some of the wounds, as well as Röntgen-ray pictures of damaged bones, are given at the end of the work.

The Influence of Modern Fire-arms on the Army Medical Service in the Field, with special reference to the Experiences of the Russo-Japanese War (Der Einfluss der modernen Kriegsfeuerwaffen auf den Sanitätsdienst bei der Feldarmee unter Berücksichtigung der Erfahrungen in Russisch-Japanischen Krieg). By Stabsarzt Boerner. 62 pp. 8¼ in. by 5¾ in. Leipzig, 1909. Georg Thieme. 1/8.

This small book consists of two portions. In the first an interesting description of the rifle and artillery equipment of European armies is given, with an account of the injuries which they may be expected to produce. The author's deductions are based partly on experiments, but mainly on the experiences of the Russo-Japanese war. The second portion of the book discusses the proper position of dressing stations and field hospitals, the equipment of medical officers and field medical units, and the work which the latter will be called on to perform. Stabsarzt Boerner is of opinion that the equipment of medical officers and units attached to troops in action should be very much reduced, with the one exception that the supply of plaster of Paris bandages to be used as splints should be increased, and that in future wars the dressing stations and field ambulances will have to occupy themselves mainly with the work of evacuating wounded instead of, as formerly, attempting any surgical treatment.

A Critical Review of the Medical Services and their Work in the Russo-Japanese War (Kriegschirurgische Rückund Ausblicke vom Asiatischen Kriegsschauplätze). By Professor Hermann Fischer. 198 pp. 9¼ in. by 6¼ in. Berlin, 1909. Hirschwald. 4/6.

This work is a concise summary of practically all the reports which have been published on the Russo-Japanese war. The matter is divided into five parts, viz.:—(1) introductory, (2) medical organisation, (3) the different arms and the wounds inflicted by them, (4) treatment of wounds, (5) dressing stations and hospitals.

Part I. begins with a short preface, followed by a very complete bibliography of the literature on the war. It next describes the nature of the country, its climate and inhabitants, and then gives a brief description of the battles and the strength of the opposing armies.

Part II. The first chapter gives a graphic account of the medical services in both armies, and contrasts these with the medical organisation of the German army. The second chapter reviews the work done by the voluntary aid societies; the third chapter deals with the nursing arrangements in field hospitals; the fourth chapter discusses the hygienic conditions in the two armies.

Part III. gives very full statistics of the wounds inflicted during the war.

Part IV. discusses the treatment and results of wounds during the war.

Part V. reviews the work of dressing stations and field hospitals in three chapters, viz.:—(1) with the fighting line, (2) in field ambulances, (3) in field and general hospitals.

This volume contains a very complete and thorough review of every aspect of the work of the medical services in both the Russian and Japanese armies during the late war.

The Roman Army Surgeon (Die altrömischen Militärärzte, Veröffentlichungen aus dem Gebiete des Militär-Sanitätswesens). By Dr. Haberling. 79 pp. 3 appendices, 14 illustrations. 9¼ in. by 6¼ in. Berlin, 1910. Hirschwald. 2/10.

This little volume contains a great deal of information on the position and employment of surgeons in the old Roman armies. The information has been collected from various writings and memorial tablets, and throws much light on the early doings of the army surgeon.

NAVAL.

Battle Fleet Pocket Book for 1910 (Taschenbuch der Kriegsflotten, 1910). By B. Weyer. 524 pp., with numerous sketches and photographs. 12mo. Munich, 1910. Lehmann. 4/6.

This annual gives statistics of the navies of the world, illustrated by diagrams. An innovation in the 1910 edition is a chapter on aerial navigation, containing a table of airships in the possession of the Governments of different States. In the chapter on naval policy it is stated that the German naval law is based on the principle that the best form of defence is a rapid offensive. With regard to reports recently published in Great Britain, the writer emphatically denies that there has been any secret acceleration of the German naval programme, and maintains that such a procedure would be unworthy of Germany.

ORGANIZATION AND ADMINISTRATION.

The Garde Mobile of 1870 (La Garde Nationale Mobile de 1870). By L. Thiriaux. 252 pp. Small 8vo. Brussels, 1909. L'Expansion Belge. 2/1.

The author, who is aide-de-camp to the Commander of the Garde Civique of Brussels, describes his work as a contribution to the study of improvised armies. His object in writing it is that his countrymen in their choice of a defensive force may have the benefit of the sad experience which France suffered 40 years ago. The narrative is founded entirely on official and historical records, to which reference is given in foot-notes, and forms a most useful and valuable summary.

From 1815 up to 1866 public opinion in France as regards the army was crystallised in the following sentence: "The army is only necessary for the maintenance of order and the established power, and for expeditions beyond the seas: as regards the defence of the country, the nation suffices; a Frenchman is a born soldier, and when the country is threatened, everyone will take his rifle from the wall like his ancestors in 1792."

Of course military officers, and notably Marshal Niel, the War Minister, did not share this illusion, but it was so strong that even after the success of Prussia against Austria in 1866 the Marshal did not dare attack it directly and demand universal service. In March, 1867, he proposed, as a half measure, a "garde mobile," which should consist of men who would receive the training of reservists of the regular army and then be liable for service for five years. It was expected to provide about 500,000 men.

M. Thiriaux traces the course of the Bill in Parliament. "The opposition to it was terrible," and only paper schemes emerged from the conflict. "The law refused training to the gardes mobiles, the Budget refused them clothing and arms;" power was only given to enrol the cadres on paper, and even this was only done in certain departments.

CARL ZEISS, 29, MARGARET STREET, REGENT ST. LONDON, W.

When the call to arms came in July, 1870, except for 20 battalions and 35 batteries, a total of 40,000 organized in the eastern fortresses, "the mobilization was a creation pure and simple." For the thousands called out there were no arms (except 30,000 "chassepots" at Strasburg), no clothing, no equipment, no transport; all had to be purchased or improvised for 400,000 men. "Training was carried on with fury; certain battalions had as much as nine hours drill a day." It is pointed out that lack of uniform resulted in many "gardes mobiles," who were captured by the Germans, being shot as marauders not entitled to the rights of combatants.

A certain amount of order had been instituted when, on the 19th September, the Government of National Defence revoked the commissions of all the officers and ordered the units to proceed, as right and proper in a republic, to the election of others, "même sous le feu d'ennemi." Some battalions, notably those of the West, "wiser than their great leaders," renominated their officers; but others, notably those of the Seine, elected, in order to have an easy time, "the adversaries of all discipline and confirmed drunkards." The "mobiles" were then placed on the same footing, as regards pay, promotion, etc., as the regular army, and "the suppression of permanent armies was advocated by the men in power."

"Some officers who had not been re-elected for the reason that they took the service seriously, were appointed sergeants-major."

The military value of the "mobiles" is investigated by the author in sections dealing with the siege of Paris, the war in the provinces until December, the winter campaign and the sieges. Nearly every action of importance is dealt with separately, and reveals nothing but failure.

The conclusions of the author are, "as a consequence of the improvidence of the Chamber and of the Ministry, not only was there nothing ready, but the belated effort required of the 'mobiles' was useless and cost an enormous amount. The contracts made for their clothing and armament were ruinous, but nevertheless the men underwent unheard-of sufferings during the rigorous winter of 1870."

"It may be regarded as a principle, that henceforward no useful effect in war can be expected except from forces which have been minutely prepared during peace."

Such units as distinguished themselves were found to have had sufficient retired regular officers and non-commissioned officers to commence instruction and provide experience. In many cases these trained men were too old to stand the strain of a campaign for more than a few weeks, but the good work they did remained, for "nothing can replace ex-officers, because they are professionals."

"The fact alone that they were, or imagined they were, armed with an inferior weapon, had a disastrous effect on *moral*, and affected some battalions for the whole of the campaign."

An appendix gives the original Bill of March, 1867, the counter-project of the Parliamentary Committee and the law of February, 1868.

Manual of Instruction in Army Organization (Leitfaden für den Unterricht im Heerwesen). Official. 104 pp. 8vo. Munich. 1909. Theodor Riedel. 2/8.

This text-book, in use at the Bavarian War School, deals with the organization of the German Army with special reference to Bavaria.

A few pages are devoted to the navy and to the Protectorate troops.

The Horses of the French Army in the time of the Revolution and the Empire (Les Chevaux de l'Armée sous la Révolution et l'Empire). By Camille Bidault. 171 pp. 8vo. Paris, 1909. Berger-Levrault. 2/-.

M. Bidault, an army veterinary surgeon, writes this instructive treatise with the dual purpose, firstly, of demonstrating the necessity of a thorough organization of the system of remounts, and secondly, what is of hardly less importance, of showing that men without knowledge of horses, who are unable through lack of training and experience to look after them in the field, cause such stupendous waste of money and horseflesh that no country can for long stand the strain on its resources.

The period is well chosen for the demonstration of the author's theory. France had to find horses, and they were not forthcoming, although there were a few remount depôts in the north, which were soon emptied. Later, under the Empire, when the French army was able to avail itself of the untouched resources of Germany, the supply, rich as it was, was only for a short time equal to the demand, and soon even Germany herself found her stock of remounts exhausted. The requirements of a continental war are proved by M. Bidault to be enormous, and he shows the impossibility of meeting the demand when circumstances prevent the purchase of horses in neighbouring countries. A complete and thoroughly efficient Government organization is necessary to keep up the supply of horses for an army in the field. Breeders and owners require assistance and protection, and greater attention should be paid to the stamp of horses, which should be improved by Government stallions.

In the later wars of the Empire, notably in Spain, the French mounted troops degenerated sadly, and proved so ignorant of horsemanship that, in spite of the vast resources then at their disposal the Government found it impossible to keep up an adequate supply of remounts. As an example of public opinion regarding the French cavalry of this period, the author quotes the well-known, though somewhat unkind funeral oration of a cavalry soldier, "Well, D—— is dead; at least he will no longer ill-treat his horse."

In view of the present difficulties with regard to the military horse supply in the United Kingdom, this volume is of peculiar interest to us, and is well worth reading by those who are interested in this question.

(To be continued).

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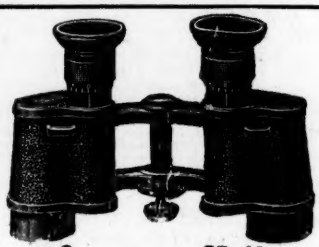

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